Evidence-Based Systematic Review: Effects of Service Delivery on the Speech and Language Skills of Children From Birth to 5 Years of Age

Tracy Schooling

Rebecca Venediktov

Hillary Leech

National Center for Evidence-Based Practice in Communication Disorders,

American Speech-Language-Hearing Association, Rockville, MD

Speech-language pathologists (SLPs) providing services to young children (i.e., birth–5 years) with communication disorders face a myriad of decisions and responsibilities. These responsibilities range from the prevention and identification of communication disorders to the development, execution, and monitoring of treatment plans. Decisions regarding treatment not only include selecting an appropriate intervention but also identifying and conscientiously addressing any other variables that may play a role in augmenting treatment effects. One such variable is the appropriate framework or service delivery model for implementing an intervention.

Because service delivery is complex and multidimensional, choosing the best format in which to deliver speech and language treatment can be a daunting task. Variables to consider include determining the location of service (e.g., home, clinic, classroom, or pull-out), the service provider (e.g., SLP, parent, or paraprofessional), the format of the service provision (e.g., group vs. individual), and the dosage (e.g., frequency, intensity, and duration) of services (Cirrin et al., 2010). The complexity of this issue is further confounded by federal mandates SLPs must adhere to that outline important considerations when providing service to this population.

According to Part C of the Individuals with Disabilities Education Act (IDEA), services to children from birth up to age 3 are to be family-centered and provided in natural environments to the greatest extent appropriate to meet the individual needs of the child. Natural environments include home and community settings that are typical or common for same-age children without disabilities. Similar provisions are provided under Part B of IDEA for preschool and school-age students that require that children with disabilities be educated in the least restrictive environment. This includes being educated with nondisabled children "to the maximum extent appropriate" to meet the specific educational needs of the student (U.S. Congress, 2004). Although these mandates highlight the importance of service delivery and attempt to ensure that children with speech and language needs receive the most appropriate services, they do not provide sufficient guidance to clinicians who must consider all aspects of service delivery in order to develop a comprehensive treatment plan. Given all of the challenges SLPs face when developing treatment plans and choosing service delivery models, it is essential that clinicians are up to date regarding the state of the evidence for young children with speech and language needs.

To remain current with the research SLPs are, more often, looking to evidence-based systematic reviews (EBSRs) for a concise view and analysis of the scientific literature. EBSRs present a comprehensive synthesis of the scientific research on a given topic, and their findings can be a useful tool to guide clinicians making evidence-based decisions about treatment and the optimal framework in which it is best delivered. Within the past 25 years, several systematic reviews have been published specifically addressing the effectiveness of different service delivery models. These reviews have examined dosage, parent-implemented versus clinician-administered therapy, inclusive versus segregated settings, classroom-based versus pull-out treatment, and school versus clinic setting. Although findings from these reviews provide some insight into various dimensions of service delivery and their effect on the treatment outcomes of young children with speech or language impairments, the mixed findings along with a number of methodological shortcomings restrict their overall clinical utility.

The primary aim of this evidence-based review was to further examine service delivery models for children from birth through 5 years of age with communication disorders. Moreover, this review attempted to address some of the limitations noted in previous systematic reviews such as the comparability of interventions across service delivery aspects, consistency in outcome, and sufficiency of treatment description and service delivery definitions. These considerations are illuminated below along with the rationale for targeting the following aspects of service delivery used to develop our clinical questions: *frequency, intensity, and duration of service*; *direct and indirect service*; *individual and group treatment*; and *treatment setting*.

Dosage

Examining the effect of treatment dosage in speech-language pathology has been an important aspect of service delivery. However, it has been difficult to determine the effects of

dosage due to its several distinct elements. These elements include the total amount of treatment and how that treatment is distributed and, more specifically, the number and length of treatment sessions over a given amount of time. Recent definitions of treatment dosage have been expanded to include not only the amount of treatment sessions but also the actual number of teaching episodes implemented during a single treatment session (Warren, Fey, & Yoder, 2007). Because different aspects of treatment dosage have been examined, comparing results across studies has been further complicated by the lack of common terminology or definitions for each aspect. For example, definitions for *treatment intensity* alone vary substantially from study to study and have included such features as the quality and quantity of service, the number of hours, the level of participation, the proportion of adults to children during treatment, and the number of specific therapeutic episodes of service over time (Warren et al., 2007).

Previous systematic reviews have differed in their conclusions as to the effect of dosage on treatment outcomes An early meta-analysis by Nye, Foster, and Seaman (1987) found no significant differences in effect sizes relative to treatment duration or length of individual treatment sessions in children with language disorders. Conversely, a later meta-analysis by Law, Garrett, and Nye (2004) found that longer treatment durations (over 8 weeks) were associated with better clinical outcomes compared to those of shorter duration for this same population. However, poor description of study design and combination of different outcomes and interventions severely limited the conclusions that could be drawn. Reichow and Wolery (2009) found similar support for early intensive behavioral intervention in a subpopulation of young children with autism spectrum disorder (ASD). An analysis of the 13 included studies revealed that increased treatment dosage had a positive effect on cognitive outcomes with longer duration

and more total hours of therapy associated with a higher probability of achieving large gains in IQ scores.

Given the mixed findings of previous literature, a further examination of the treatment effect of frequency, intensity, and duration of SLP services was justified (see Table 1, Clinical Question 1). For this EBSR, we defined *intensity* as the amount of time spent in each treatment session, *frequency* as the number of treatment sessions over a set period of time (usually 1 week), *duration* as the length of treatment received, and *total dosage* as the overall amount of treatment received.

Service Provider

The selection of a service provider is another aspect of service delivery that bears further investigation. Although speech and language services have traditionally been delivered by SLPs, young children may receive treatment from a variety of alternative service providers including speech-language therapy assistants, parents, caregivers, teachers, peers, or others (Blosser & Kratcoski, 1997). Considering the distinct and essential role that parents and caregivers play in a young child's development, intervention provided by these individuals may provide unique opportunities to maximize treatment outcomes. For example, parents and caregivers can consistently implement an intervention throughout the course of a day in a variety of settings that are important to the child and family thereby enhancing skill development, generalization, and maintenance. Additionally, given that many early intervention programs have adopted a primary service provider or transdisciplinary model (National Early Childhood Technical Assistance Center, 2009), other professionals (e.g., early interventionists) are likely to be involved in implementing speech and language programs.

The effect of service provider has been studied in various systematic reviews. In Law et al. (2004), no significant differences were shown between clinician-administered interventions and those implemented by trained parents to children with speech-language disorders. Other reviews examining parent-mediated or parent-managed interventions in children with ASD found inconclusive results. One review (Diggle, McConachie, & Randle, 2003) noted mixed results across the two included trials, one favoring the parent-training group over community day care for child language and maternal outcomes and the other favoring intensive intervention delivered by professionals over parent-mediated services for child outcomes. Doughty (2004) investigated the primary and secondary evidence on the effectiveness of behavioral interventions and skill-based interventions for young children with ASD. In two studies, parent-managed intensive behavioral intervention was found to be less effective than clinic-based programs. One study noted that parent training in behavioral intervention was more effective for improving communication outcomes over usual care. A systematic review of six studies of parents as primary intervention providers revealed that parental involvement was associated with positive outcomes in speech, language, and play skills (Levy, Kim, & Olive, 2006). Brunner and Seung (2009) examined communication-based treatments and noted that the findings supported the efficacy of parent-based developmental interventions. A final review by McConachie and Diggle (2007) found that parent training may lead to improved communication, increased maternal communication, and increased parent–child interaction. The variability among the studies included in these reviews did not allow for comparison of the effect of the treatment administered by a parent versus clinician or alternative service provider. It is also important to note that because most of these reviews focused solely on children with ASD, the findings may not generalize to the broader population of young children in need of SLP services.

Table 1 outlines the second clinical question pertaining to service provider. Services provided by an SLP are considered *direct treatments* in this review, whereas *indirect treatments* are those delivered by any other individual, typically under the direction of an SLP.

Format of Treatment

A third aspect of service delivery addressed in our review targeted the format of the treatment (see Table 1, Clinical Question 3). This is an important question as the selection of individual or group treatment is often influenced by a number of extraneous factors unrelated to the child's individual needs such as caseload size (Dowden et al., 2006) or SLP shortages (American Speech-Language-Hearing Association [ASHA], 2008). The effects of treatment format were investigated in a single systematic review (Law, Garrett, & Nye, 2003), which found no significant difference between group and individual treatment in children with primary speech-language delay or disorder.

Treatment Setting

Lastly, federal mandates directing clinicians to provide treatment in naturalistic settings and the least restrictive environment prompted our final question detailed in Table 1. The influence of these settings on speech and language outcomes in young children is unclear and has yet to be fully explored. Treatment setting ranges from home, clinic, school, or community, to integrated classrooms, segregated classrooms, pull-out settings, and classroom settings.

Two previous reviews were found pertaining to treatment setting; however, the results were mixed and limited by the number of treatment settings compared (i.e., classroom vs. pull-out services and integrated vs. segregated settings). McGinty and Justice (2006) examined the experimental evidence concerning the relative effectiveness of classroom-based service versus pull-out service for preschool or early-elementary children with language impairments. Two

studies reported better outcomes for collaborative, classroom-based services over pull-out services on vocabulary outcomes, whereas a third study reported no significant differences between classroom and pull-out services on total language and expressive scores and an advantage for pull-out services on receptive language measures. Buysse and Bailey (1993) also found no significant differences between integrated and segregated placements on developmental outcomes for young children with disabilities but reported potential benefits of integrated settings on social and behavioral outcomes.

The primary aim of these clinical questions and this review was to examine the effects of each service delivery dimension as well as the characteristics of the children and treatments to provide clinicians with the necessary information to make sound clinical decisions.

Method

A systematic literature search was conducted from September 2009 through January 2010. A broad set of key words related to early intervention, communication disorders, speech-language pathology, dosage, and service delivery was generated by the author panel. These key words were then mapped to the medical subject headings from the National Library of Medicine or to the controlled vocabulary specific to each of the searched databases (see Appendix A for a complete list of databases, search dates, and corresponding search terms). Truncated search terms were used to capture spelling or suffix variations. To identify as many relevant citations as possible, the systematic search combined a pearl growing strategy (Hawkins & Wagers, 1982) and plain text searching. Additional citations were identified through hand searches of references from all full-text articles and narrative reviews and through forward citation tracking of relevant articles.

Studies were considered for review if they were published in a peer-reviewed journal (including "in-press" studies) between 1975 and December 2009, were written in English, and contained original data addressing one or more of the four clinical questions. Additionally, studies had to examine infants, toddlers, or preschoolers from birth through 5 years of age with speech-language impairment as either a primary disorder or secondary to other conditions (e.g., developmental delay, cognitive disabilities, or hearing impairment). We excluded studies if the participants were within the target age range but enrolled in kindergarten (as these children were included in a different review; Cirrin et al., 2010) or if the participants were considered "at-risk" but were not identified with speech-language impairment. To examine the effects of service delivery, included studies had to incorporate an experimental, quasi-experimental, or multiple baseline single-subject design in which the type of intervention was held constant and only the service delivery model or dosage of the intervention varied. An additional inclusion criterion applied only to Clinical Question 2 (What is the effect of indirect versus direct service on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?). Because direct treatment was defined as intervention provided by an SLP, studies addressing this clinical question had to include service provision by an SLP.

Figure 1 displays the findings from the systematic search. Two authors independently reviewed 801 abstracts for inclusion. Of these, 110 were preliminarily accepted, and the full text of these articles was reviewed. This resulted in an additional 93 studies being excluded because they did not meet one or more of the inclusion criteria. A total of 17 citations were included in the final analysis. Study eligibility agreement between reviewers was 89%, and all disagreements were resolved by consensus. A log of excluded studies and the reason for exclusion is included in Appendix B.

All included articles were assessed for methodological quality by two independent evaluators using ASHA's level of evidence scheme (Mullen, 2007). This structured system was used to identify areas of possible bias or methodological weaknesses across eight domains including study protocol description, blinding, sampling/allocation, participant comparability/description, treatment fidelity (of the service delivery model), statistical significance, precision, and intention to treat. A study received 1 point for each quality indicator meeting the highest criteria in a corresponding category (see Table 2). For controlled trials, all eight quality markers were applicable leading to a maximum quality score of 8. Other study designs in which an intention to treat analysis was not relevant could receive a maximum quality score of 7. Agreement between the two evaluators was 81%, and all scoring discrepancies were resolved through consensus. All studies, regardless of quality marker score, were included in the analysis.

The same two evaluators also completed the data extraction for each of the studies. The data extraction process was used to summarize the important characteristics of each study and included key elements concerning the participants, interventions, service delivery characteristics, outcomes, major findings, and study limitations. Disagreements regarding the summaries were also resolved through discussion and consensus.

Effect sizes were included if they were reported by the authors in the article. When not reported, effect sizes and 95% confidence intervals (CIs) were calculated for outcome measures when possible. For group studies, Cohen's *d* was calculated from group posttest means and standard deviations or estimated from results of analyses of variance or *t* tests (Cohen, 1988). For single-subject designs with adequate data, a weighted effect size was calculated for targeted outcome measures (Beeson & Robey, 2006; Busk & Serlin, 1992). Clinical significance of an

effect size was determined by analyzing the range included in the corresponding 95% CI. If the CI did not contain the null value ($d = 0$), the effect was considered clinically significant. Given that each included study compared one or more aspects of service delivery and that there was no control condition, direction of effect size (i.e., positive or negative) was simply assigned for each clinical question. A synthesis of study results is presented below by clinical question.

Results

Table 3 summarizes the clinical questions addressed, study design, and quality markers of the 17 studies meeting the inclusion criteria for this EBSR. Ten of the studies examined the effects of treatment dosage (Question 1), four studies compared direct treatment to indirect treatment (Question 2), six studies compared individual treatment to group treatment (Question 3), and nine studies investigated the effects of treatment setting on speech and language outcomes in young children (Question 4). This total exceeds 17 because many of the studies (6/17) varied across multiple aspects of service delivery and therefore addressed more than one clinical question. Included studies were either controlled trials (14/17) or single-subject design investigations (3/17). Methodological quality ratings varied across the 17 studies. Most of the controlled trials (10/14) achieved a quality-marker score of 5 or below. Smith, Groen, and Wynn (2000) received the highest quality marker score (7/8) of the controlled trials included in this review. Scores for the three single-subject design investigations ranged from 2 (Chiara, Schuster, Bell, & Wolery, 1995) to 3 (Colozzi, Ward, & Crotty, 2008; Venn, Wolery, & Greco, 1996) out of a possible score of 7. Most of the studies reported statistical significance (14/17), group comparability at baseline (14/17), descriptions of the study protocol (12/17), evidence of treatment fidelity (11/17), or sufficient data to compute effect sizes and CIs (10/17). However, studies were lacking in other areas. Fewer than half of the studies reported assessor blinding

(6/17) or random allocation of participants with an adequate description of the randomization procedures (4/17). Additionally, none of the controlled trials reported using an intention-to-treat standard in data analysis.

Participant and Intervention Characteristics

A total of 491 participants age 20–66 months were examined with individual study sample size ranging from one to 96 participants (see Table 4). Of the studies reporting gender, 67% of the participants were male, and 33% were female. Medical or SLP diagnoses of participants varied and included speech-language delay/disorder (68%), developmental delay (20%), and ASD (12%). A range of treatment approaches and techniques were employed in the various studies including but not limited to interactive modeling, dialogic reading, discrete trial instruction, constant time delay, incidental learning, phonological awareness, and sound discrimination.

Clinical Question 1: What is the effect of frequency, intensity, or duration of service on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?

Table 5 provides a description of the treatment schedules, outcomes, and relevant findings included in the 10 studies. Half of the studies (5/10) compared more than one aspect of service delivery (e.g., dosage and treatment setting). Two of the studies were single-subject designs (Chiara et al., 1995; Venn et al., 1996), and the remaining eight were controlled trials. Thirty-five effect sizes (with corresponding CIs) were reported or calculable from six studies (Eiserman, Weber, & McCoun, 1990, 1992; Lonigan & Whitehurst, 1998; Smith et al., 2000; Whitehurst et al., 1994; Wilcox, Kouri, & Caswell, 1991) and ranged from –1.17 to 1.77. For this clinical question, a positive effect size reflects results favoring a more intensive or higher amount

of treatment, and a negative effect size reflects gains favoring a less intensive or lower amount of treatment. Twenty-eight of the 35 effect sizes (80%) had CIs that included the null value and were not considered clinically significant. Of the seven clinically significant effect sizes, six favored a more intensive or greater amount of treatment.

Lonigan and Whitehurst (1998) compared three groups of children with receptive and expressive vocabulary delays. One group received dialogic reading instruction daily at school, a second group received this instruction daily at home, and the third group received daily instruction at home and school. Compared to the school only group, the group receiving home and school instruction showed greater gains, d = 1.07, 95% CI [0.08, 1.97], on the verbal expression subtest of the Illinois Test of Psycholinguistic Abilities (ITPA; Kirk, McCarthy, & Kirk, 1968) and on mean length of utterance (MLU), d = 1.61, 95% CI [0.5, 2.58]. The school plus home instruction group also showed larger gains than the home instruction only group on the verbal expression subtest of the ITPA, d = 1.25, 95% CI [0.03, 2.3], as well as on the number of different words used in a language sample, d = 1.77, 95% CI [0.44, 2.86]. In another study (Eiserman et al., 1990), preschoolers receiving intervention four times weekly showed greater gains than those receiving treatment once weekly on responding to requests during a parent–child language sample, d = 0.82, 95% CI [0.15, 1.46], and on the number of unintelligible child utterances in an SLP–child language sample, d = 0.74, 95% CI [0.09, 1.37]. However, children receiving less intensive intervention produced more spontaneous utterances in a parent–child language sample, d = –1.17, 95% CI [–1.82, –0.47]. In a second-year follow-up study (Eiserman et al., 1992), five children from the intensive treatment group and seven children from the once-weekly group continued to receive intervention, but no language sample results were reported.

Other studies (Barrat, Littlejohns, & Thompson, 1992; Chiara et al., 1995; Eiserman et al., 1990; Luiselli, Cannon, Ellis, & Sisson, 2000; Venn et al., 1996) provided information to address this clinical question but did not report sufficient information to calculate effect sizes or CIs. In Barrat et al. (1992), preschoolers who received SLP treatment four times per week for 24 sessions showed significant gains ($p = .02$) on the expression subtest of the Reynell Developmental Language Scales (RDLS; Reynell, 1977) compared to those who received the same number of sessions distributed one time per week. However, no significant differences were noted between the two groups on the comprehension subtest of the RDLS. The single participant in Chiara et al. (1995) required fewer trials to reach criterion in a picture-naming activity in an individual distributed trial format (42 trials) compared to the small group massed trial format (140 trials). Maintenance and generalization were similar across both conditions. Luiselli et al. (2000) compared children with ASD who began discrete trial training prior to age 3 to a group who started after age 3. The two groups differed significantly on the average amount of weekly treatment but not on total amount or duration of treatment. No significant differences in the communication domain of the Early Learning Accomplishments Profile (ELAP; Glover, Priminger, & Sanford, 1988) or Learning Accomplishments Profile (LAP; Sanford & Zelman, 1981) were noted. However, additional analyses of the different aspects of treatment dosage (e.g., hours of treatment per week and total amount of treatment) revealed that duration of treatment was a significant predictor of change ($p < .002$) for the communication domain of the ELAP or LAP. Another study (Venn et al., 1996) compared the effects of instruction provided every day versus every other day on the letter- or number-naming abilities of two children with ASD. Both children required fewer sessions, trials, and minutes of instruction to reach criterion in the every other day condition. However, maintenance and generalization of naming abilities

were the same for both treatment conditions. Three outcome measures from Eiserman et al. (1990) had effect sizes that were not analyzable because CIs could not be calculated. Reported *p* values for these measures (i.e., Preschool Language Scale [PLS] Total Developmental Quotient, Test for Auditory Comprehension of Language—Revised [TACL–R] Total Developmental Quotient, and developmental sentence score from the parent–child language sample) were all nonsignificant ($p > .05$).

Clinical Question 2: What is the effect of direct versus indirect service on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?

Table 6 details the results of the four studies. All four studies were controlled trials that compared treatment provided by an SLP (direct treatment) to intervention provided by trained parents (indirect treatment). All of the investigations examined language or vocabulary outcomes, and three of the studies (Barnett, Escobar, & Ravsten, 1998; Eiserman et al., 1990, 1992) examined articulation outcomes as well. Twenty-three effect sizes and CIs from three of the studies were reported or calculable. Effect sizes ranged from –1.17 to 1.24. Most of the CIs (19/23, or 83%) of the effect sizes included the null value, indicating no clinically significant differences in outcomes between direct and indirect treatment. For studies addressing this clinical question, a negative effect size indicates greater gains for the children receiving direct treatment, and a positive effect size indicates greater gains for the children receiving indirect treatment. Mixed results were noted across the four significant effect sizes, which examined outcomes from child language samples. Three of the four came from one investigation (Eiserman et al., 1990), described previously, which addressed all four clinical questions. Indirect treatment by parents who had been trained by an SLP demonstrated significant effects for two outcomes (i.e., child responding to requests during a parent–child language sample and the number of

unintelligible child utterances in an SLP–child language sample), and direct treatment produced a significant effect for one outcome (i.e., percentage of spontaneous child utterances during a parent–child language sample). These same outcomes were not assessed in a follow-up (Eiserman et al., 1992) of 12 children who continued to receive treatment in their original groups. In Gibbard (1994), children with an expressive language delay receiving indirect treatment showed greater gains on MLU than those receiving treatment by an SLP, $d = 1.24$, 95% CI [0.14, 2.2].

Barnett et al. (1988) also examined the effects of direct and indirect treatment, but no effect sizes were calculable. In this study, preschoolers who received indirect treatment showed significant pre- to posttreatment improvement on the PLS (Zimmerman, Steiner, & Pond, 1979; $p < .01$) and on the Arizona Articulation Proficiency Scale (AAPS; Fudala, 1974; $p < .05$). The group receiving direct treatment did not demonstrate significant improvement on either measure. In Eiserman et al. (1990), no significant differences ($p > .05$) were reported between direct and indirect treatment on the PLS, TACL–R, or the developmental sentence score from a parent–child language sample.

Clinical Question 3: What is the effect of individual versus group treatment on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?

Table 7 provides a description of the outcomes and relevant findings for the six studies addressing this question. Four of the studies were controlled trials and two were single-subject design investigations. Across the four controlled trials, 20 effect sizes with CIs were calculable and ranged from –1.17 to 0.83. Again, most of these (17/20, or 85%) had a CI that included the null value, indicating effects that were not considered clinically significant. Negative effect sizes represent outcomes favoring group treatment, and positive effect sizes reflect outcomes favoring

individual treatment. The same three effect sizes from Eiserman et al. (1990) were the only significant findings for this clinical question. In this study, children receiving individual treatment had fewer unintelligible utterances in an SLP–child language sample and more responses to parent requests in a parent–child language sample, whereas those receiving group treatment demonstrated a greater percentage of spontaneous utterances in a parent–child language sample.

Additional studies addressed this question, but effect sizes or CIs were not reported or calculable. In Chiara et al. (1995), the participant needed fewer trials to achieve picture-naming skills in individual treatment using a distributed trial format (42 trials) compared to small group treatment using a massed trial format (140 trials). However, maintenance and generalization of skills were similar across both conditions. Another study (Colozzi et al., 2008) investigated the use of a simultaneous prompting procedure in individual and small group settings. Children required roughly the same amount of treatment sessions and trials to reach criterion under both conditions. However, more targets were acquired in the group treatment setting, leading the authors to conclude that some observational learning had occurred in the small group setting. There were no differences noted between the two treatment conditions in generalization of skills. Another study (Eiserman et al., 1990) reported no significant differences ($p > .05$) between individual and group treatment on the PLS, TACL–R, or the developmental sentence score from a parent–child language sample.

Clinical Question 4: What is the effect of treatment setting (home vs. clinic, classroom vs. pull-out, etc.) on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?

The nine controlled trials targeting this clinical question compared a variety of treatment settings (see Table 8). Five studies (Barnett et al., 1988; Crain-Thorenson & Dale, 1999, Eiserman et al., 1990, 1992; Lonigan & Whitehurst, 1998) compared the effects of clinic or school-based treatment to home-based treatment; two studies (Harris, Handelman, Kristoff, Bass, & Gordon, 1990; Rafferty, Piscitelli, & Boettcher, 2003) compared integrated and segregated classrooms; and two studies (Valdez & Montgomery, 1996; Wilcox et al., 1991) investigated the effects of classroom-based versus pull-out intervention. For this question, direction of effect size was assigned as follows: Treatments favoring clinic or school-based (negative effect size) compared to home-based (positive effect size); treatments favoring segregated classrooms (negative effect size) compared to integrated or inclusive classrooms (positive effect size); and treatments favoring individual pull-out (negative effect size) compared to classroom-based or collaborative models (positive effect size).

From the five studies comparing clinic or school-based treatment to home treatment, 22 effect sizes and corresponding CIs were reported or calculable and ranged from –1.17 to 0.83. Nineteen of the 22 effect sizes (86%) had CIs that included the null value and were not considered clinically significant. All three of the clinically significant effect sizes were from a study (Eiserman et al., 1990) that compared multiple aspects of service delivery including clinic and home-based treatments. Children receiving home-based treatment were more responsive to requests during a parent–child language sample, $d = 0.82$, 95% CI [0.15, 1.46], and had fewer unintelligible utterances in an SLP–child language sample, $d = 0.74$, 95% CI [0.09, 1.37], than children receiving clinic-based treatment from SLPs. However, clinic-based treatment yielded greater spontaneous utterance production in a parent–child language sample, $d = –1.17$, 95% CI [–1.82, –0.47]. Other studies provided further evidence, although effect sizes and CIs were not

reported or calculable. In one investigation (Eiserman et al., 1990), no significant differences were noted between clinic and home-based treatment on various language measures (i.e., PLS, TACL–R, and developmental sentence score). In another study comparing clinic and home-based treatment (Barnett et al., 1988), children receiving home-based treatment exhibited significant gains on the PLS—Revised Edition (PLS–R; Zimmerman et al., 1979; $p < .01$) and the AAPS ($p < .05$), whereas the clinic-based group did not.

The two studies comparing segregated and integrated classrooms yielded six effect sizes ranging from –0.05 to 0.84. Four of the six effect sizes (67%) had CIs containing the null value, indicating no clinically significant difference in outcomes. Rafferty et al. (2003) evaluated the effects of inclusive and segregated preschool programs on the language abilities of children with disabilities. Among participants classified as having severe disabilities, greater gains were made from inclusive programs on the auditory comprehension subscale, $d = 0.81$, 95% CI [0.19, 1.38], and expressive language subscale, $d = 0.84$, 95% CI [0.22, 1.42], of the PLS—Third Edition (PLS–3; Zimmerman, Steiner, & Pond, 1992) than children in segregated classrooms. For children with less severe disabilities, inclusive and segregated classes did not have a differential impact, and language gains were similar across both settings.

Three effect sizes were calculable from studies comparing individual pull-out treatment to classroom-based or collaborative models. These effect sizes ranged from 0.24 to 0.56. All three had a CI that included the null value, indicating effects that were not considered clinically significant. Another study provided additional information, but effect sizes or CIs were not reported or calculable. Valdez and Montgomery (1996) compared the effects of pull-out and classroom-based intervention and reported no significant differences in Clinical Evaluation of

Language Fundamentals—Preschool (Wiig, Secord, & Semel, 1991) scores between the two groups.

Culturally and Linguistically Diverse Populations

In an attempt to understand the extent to which the findings from this review can be generalized to diverse populations, the cultural and linguistic characteristics of the participants were examined to determine if the results of the studies varied across any of these characteristics (see Table 9). Two of the studies (Barratt et al., 1992; Gibbard, 1994) were conducted in England, and the remaining 15 were conducted in the United States. Two studies (Eiserman et al., 1990; Lonigan & Whitehurst, 1998) reported that English was the primary home language for all participants, and a third (Whitehurst et al., 1994) indicated that 90% of mothers spoke English as their primary home language. The remaining studies did not report linguality. Race or ethnicity information was indicated in seven studies (Barratt et al., 1992; Eiserman et al., 1990; Lonigan & Whitehurst, 1998; Rafferty et al., 2003; Smith et al., 2000; Valdez & Montgomery, 1996; Whitehurst et al., 1994) and varied widely. For example, all of the participants in Eiserman et al. (1990) were Caucasian, whereas all of the participants in Valdez and Montgomery (1996) were African American. Overall, the disparity in race/ethnicity among the studies did not appear to influence the findings. However, one investigation (Barratt et al., 1992) analyzed the results of Whites and non-Whites separately and found that Whites made significantly greater gains in language expression but not in language comprehension.

Other parent and family factors were also reported. The percentage of families with both parents in the home was noted in five studies (Barnett et al., 1988; Eiserman et al., 1990; Rafferty et al., 2003; Smith et al., 2000; Whitehurst et al., 1994) and ranged from 58% to 95%. The education level of parents was reported in five studies. The mean years of education ranged

from 12.32 to 14.5 years. One study (Barnett et al., 1988) reported that most parents had attended college, and another (Rafferty et al., 2003) indicated that 48% of mothers and 40% of fathers had some level of education beyond high school. Three studies (Eiserman et al., 1990; Rafferty et al., 2003; Whitehurst et al., 1994) specified the employment level of the parents. The percentage of mothers working outside of the home ranged from 37% to 91%, and the percentage of fathers/partners working outside the home ranged from 70% to 92%. Eiserman et al. (1990) reported that 67.5% of the fathers held technical/managerial positions or above and worked an average of 40.75 hr per week. Seven studies reported data on the socioeconomic status of the participants. Two studies (Lonigan & Whitehurst, 1998; Whitehurst et al., 1994) described the participants as "low income;" one (Valdez & Montgomery, 1996) noted that all participants were eligible for Head Start, and one (Barnett et al., 1988) indicated that all families were middle income. The mean household income of participants in Eiserman et al. (1990) was $27,449, and the median family income in Smith et al. (2000) was $40,000–$50,000. One investigation from England (Gibbard, 1994) used a social class scale (Office of Population Censuses and Surveys, 1980) in which most of the participants ranged from Level 2–3N. Despite the diversity in cultural, family, and linguistic factors of the study populations, there was little variation in study results. Therefore, it does not appear that any of these factors consistently influenced the findings.

Discussion

The purpose of this systematic review was to determine the effects of service delivery characteristics on the speech and language skills of infants, toddlers, and preschoolers with communication disorders. Four clinical questions were developed to differentiate the various aspects of service delivery including treatment dosage, service provider, treatment format, and

treatment setting. A total of 17 studies were found that examined one or more of these aspects. A consistent trend was noted across the included studies. The overwhelming majority of results reported for each of the four questions showed that the various aspects of service delivery did not have a significant effect on speech and language outcomes. However, the interpretation and clinical implication of these findings is unclear due to a number of limitations and factors involved in examining service delivery.

One of the confounders of previous systematic reviews examining some aspect of service delivery was that in many of the included studies both the intervention and the service delivery model varied. Because of this, it is not known if it was the service delivery model or the active ingredients of the various interventions that brought about any of the resulting changes. In this EBSR, we tried to control for this variable by only including studies in which the intervention was reportedly held constant. However, it was not always clear if a treatment was truly held constant or if the treatments provided under each service delivery condition were simply near-equivalents of one another. For example, some of the studies suggested that participants received the same intervention or curriculum but provided limited descriptions of the treatment procedures or noted that the treatments were individualized (e.g., structured teaching methods and games to increase linguistic complexity; language development through play in addition to structured work on individual child's language needs; individualized pragmatic approach focusing on social interaction, language stimulation, and speech development; treatment targeting concept development; developmentally organized and language-focused preschool combining incidental learning and structured teaching). These vague descriptions provide little insight into the key components of the intervention. Clinically, individualization and flexibility in treatment implementation are important components of providing intervention. However,

when investigating the impact of service delivery, these factors introduce variability that may undermine the findings.

Another factor to consider when interpreting these results is the interrelated and multidimensional nature of service delivery. Many of the included studies (6/17) examined more than one aspect of service delivery. Furthermore, one study (Eiserman et al., 1990) and its follow-up investigation (Eiserman et al., 1992) examined all four aspects of service delivery targeted in this review (i.e., dosage, treatment provider, treatment format, and treatment setting). Because many of the significant effect sizes reported for each clinical question were from Eiserman et al. (1990), it is unclear which service delivery characteristic or combination of characteristics may have affected these outcomes. Even the studies that only addressed one clinical question often varied across more than just a single aspect of service delivery. For example, in Crain-Thoreson and Dale (1999), one group received parent instruction at home and the other received staff instruction at school. Because the instruction at school was not provided by an SLP, it did not address Clinical Question 2 (direct vs. indirect treatment), but it still differed in multiple aspects of service delivery (i.e., treatment provider and treatment setting).

The interdependent and complex factors of service delivery do not lend themselves to easy investigation. For example, studies that compare treatment providers (SLP vs, parent) may, understandably, also vary across treatment setting (clinic vs. home). Likewise, study participants receiving different treatment intensities may also receive different amounts of treatment. Findings from these types of studies (i.e., those assessing more than one aspect of service delivery) do not allow for accurate interpretation of the results to ascertain which service delivery component or combination of components may augment (or inhibit) treatment effects.

Future Research

In 1993, Casto and White stated that "knowledge about what type of early intervention is best for which children under which conditions is a gradual, cumulative process that requires hundreds of studies by dozens of researchers over a substantial period of time" (Casto & White, 1993, p. 234). Given these criteria, the current science of SLP service delivery to young children remains woefully understudied. Future studies examining service delivery should systematically examine discrete aspects of service delivery in children using well-designed and highly controlled methodologies. These investigations should consider and control for confounding variables such as intervention type, age at initiation of intervention, and parental participation and involvement. To determine the clinical applicability of different models, studies should incorporate children with various types of disabilities and severity levels. Similar types of investigations should be conducted on combinations of different service delivery variables as well.

Conclusion

Based on the studies included in this EBSR, service delivery factors do not appear to have a significant effect on speech and language outcomes in young children. At this time, however, the existing research is inadequate and too compromised by qualitative and methodological limitations. Therefore, the results of this EBSR offer little direction to SLPs seeking to understand the implications of service delivery on treatment outcomes. Clinicians, however, should not consider a lack of considerable and compelling evidence as a reason for inaction (Petticrew, 2003). Instead, SLPs must consistently and conscientiously evaluate not only the effects of the intervention they provide but also the framework in which it is delivered. Failure to do so may result in decisions regarding service delivery being made based on external

factors such as time and resource constraints instead of the individual needs of the child. Through the coordinated accumulation of high-quality evidence by both clinicians and researchers, we can gather insight into the key variables that contribute to maximizing the speech and language skills of young children with communication disorders.

Acknowledgments

This work was supported by the American Speech-Language-Hearing Association's National Center for Evidence-Based Practice in Communication Disorders.

References

References marked with an asterisk indicate studies included in the systematic review.

American Speech-Language-Hearing Association. (2008). *2008 Schools Survey report: Workforce/work conditions.* Rockville, MD: Author.

*Barnett, W. S., Escobar, C. M., & Ravsten, M. T. (1988). Parent and clinic early intervention for children with language handicaps: A cost-effectiveness analysis. *Journal of Early Intervention, 12,* 290–298.

*Barratt, J., Littlejohns, P., & Thompson, J. (1992). Trial of intensive compared with weekly speech therapy in preschool children. *Archives of Disease in Childhood, 67,* 106–108.

Beeson, P., & Robey, R. (2006). Evaluating single-subject treatment research: Lessons learned from the aphasia literature. *Neuropsychological Review, 16,* 161–169.

Blosser, J. L., & Kratcoski, A. (1997). PACs: A framework for determining appropriate service delivery options. *Language, Speech, and Hearing Services in Schools, 28,* 99–107.

Brunner, D., & Seung, H. (2009). Evaluation of the efficacy of communication-based treatments for autism spectrum disorders. *Communication Disorders Quarterly, 31,* 15–41.

Busk, P. L., & Serlin, R. (1992). Meta-analysis for single case research. In T. R. Kratochwill & J. R. Levin (Eds.), *Single-case research design and analysis: New directions for psychology and education* (pp. 187–212). Hillsdale, NJ: Erlbaum.

Buysse, V., & Bailey, D. B. (1993). Behavioral and developmental outcomes in young children with disabilities in integrated and segregated settings. *The Journal of Special Education, 26*, 434–461.

Casto, G., & White, K. R. (1993). Longitudinal studies of alternative types of early intervention: Rationale and design. *Early Education and Development, 4*, 224–237.

*Chiara, L., Schuster, J., Bell, J., & Wolery M. (1995). Small-group massed-trial and individually distributed-trial instruction with preschoolers. *Journal of Early Intervention, 19*, 203–217.

Cirrin, F. M., Schooling, T. L., Nelson, N. W., Diehl, S. F., Flynn, P. F., Staskowski, M., … Adamczyk, D. F. (2010). Evidence-based systematic review: Effects of different service delivery models on communication outcomes for elementary school–age children. *Language, Speech, and Hearing Services in Schools, 41*, 233–264.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Mahwah, NJ: Erlbaum.

*Colozzi, G., Ward, L., & Crotty, K. (2008). Comparison of simultaneous prompting procedure in 1:1 and small group instruction to teach play skills to preschool students with pervasive developmental disorder and developmental disabilities. *Education and Training in Developmental Disabilities, 43*, 226–248.

*Crain-Thoreson, C., & Dale, P. (1999). Enhancing linguistic performance: Parents and teachers as book reading partners for children with language delays. *Topics in Early Childhood Special Education, 19,* 28–39.

Diggle T., McConachie, H. R., & Randle, V. R. L. (2003). Parent-mediated early intervention for young children with autism spectrum disorder (Art. No. CD003496) . *Cochrane Database of Systematic Reviews*.

Doughty, C. (2004). What is the evidence for the effectiveness of behavioural and skill-based early intervention in young children with autism spectrum disorder (ASD)? *New Zealand Health Technology Assessments Tech Brief Series, 3*(1). Retrieved from http://nzhta.chmeds.ac.nz/publications/early_autism.pdf.

Dowden, P., Alarcon, N., Vollan, T., Cumley, G. D., Kuehn, C. M., & Amtmann, D. (2006). Survey of SLP caseloads in Washington State schools: Implications and strategies for action. *Language, Speech, and Hearing Services in Schools, 37,* 104–117.

*Eiserman, W. D., Weber, C., & McCoun, M. (1990). A cost-effectiveness analysis of two alternative program models for serving speech-disordered preschoolers. *Journal of Communication Disorders, 14,* 297–317.

*Eiserman, W. D., Weber, C., & McCoun, M. (1992). Two alternative program models for serving speech-disordered preschoolers: A second year follow-up. *Journal of Communication Disorders, 25,* 77–106.

Fudala, J. B. (1974). *Arizona Articulation Proficiency Scale*. Los Angeles, CA: Western Psychological Services.

*Gibbard, D. (1994). Parental-based intervention with pre-school language-delayed children. *European Journal of Disorders of Communication, 29,* 131–150.

Glover, M. E., Priminger, J. L., & Sanford, A. R. (1988). *Early Learning Accomplishments Profile*. Winston-Salem, NC: Kaplan.

*Harris, S. L., Handleman, J. S., Kristoff, B., Bass, L., & Gordon, R. (1990). Changes in language development among autistic and peer children in segregated and integrated preschool settings. *Journal of Autism and Developmental Disorders, 20*, 23–31.

Hawkins, D. T., & Wagers R. (1982). Online bibliographic search strategy development. *Online, 6*, 12–19.

Kirk, S. A., McCarthy, J. J., & Kirk, W. D. (1968). *Illinois Test of Psycholinguistic Abilities*. Urbana: University of Illinois Press.

Law J., Garrett, Z., & Nye C. (2003). Speech and language therapy interventions for children with primary speech and language delay or disorder (Art. No. CD004110). *Cochrane Database of Systematic Reviews*. doi:10.1002/14651858.CD004110.

Law, J., Garrett, Z., & Nye, C. (2004). The efficacy of treatment for children with developmental speech and language delay/disorder: A meta-analysis. *Journal of Speech, Language, and Hearing Research, 47,* 924–943.

Levy, S., Kim, H., & Olive, M. (2006). Interventions for young children with autism: A synthesis of the literature. *Focus on Autism and Other Developmental Disabilities, 21*, 55–62.

*Lonigan C., & Whitehurst, G. (1998). Relative efficacy of parent and teacher involvement in a shared-reading intervention for preschool children from low-income backgrounds. *Early Childhood Research Quarterly, 13*, 263–290.

*Luiselli, J. K., Cannon, B. O., Ellis, J. T., & Sisson, R. W. (2000). Home-based behavioral intervention for young children with autism/pervasive developmental disorder: A

preliminary evaluation of outcome in relation to child age and intensity of service delivery. *Autism, 4*, 426–438.

McConachie, H., & Diggle, T. (2007). Parent implemented early intervention for young children with autism spectrum disorder: A systematic review. *Journal of Evaluation in Clinical Practice, 13*, 120–129.

McGinty, A., & Justice, L. M. (2006). Classroom-based versus pull-out language intervention: An examination of the experimental evidence. *EBP Briefs, 1*(1), 1–25.

Mullen, R. (2007, March 6). The state of the evidence: ASHA develops levels of evidence for communication sciences and disorders. *The ASHA Leader, 12*(3), pp. 8–9, 24–25.

National Early Childhood Technical Assistance Center. (2009). *Part C SPP/APR 2009 indicator analyses: FFY 2007-2008*. Retrieved from www.nectac.org/~pdfs/partc/part-c_sppapr_09.pdf.

Nye, C., Foster, S. H., & Seaman, D. (1987). Effectiveness of language intervention with the language/learning disabled. *Journal of Speech and Hearing Disorders, 52*, 348–357.

Office of Population Censuses and Surveys. (1980). *Classification of occupations*. London, England: Her Majesty's Stationery Office.

Petticrew, M. (2003). Why certain systematic reviews reach uncertain conclusions. *British Medical Journal, 326*, 756–758.

*Rafferty, Y., Piscitelli, V., & Boettcher, C. (2003). The impact of inclusion on language development and social competence among preschoolers with disabilities. *Exceptional Children, 69*, 467–479.

Reichow, B., & Wolery, M. (2009). Comprehensive synthesis of early intensive behavioral interventions for young children with autism based on the UCLA young autism project model. *Journal of Autism and Developmental Disorders, 39,* 23–41.

Reynell, J. (1977). *Reynell Developmental Language Scales—Revised*. Windsor, England: Nfer.

Sanford, A. R., & Zelman, J. G. (1981). *Learning Accomplishments Profile*. Winston-Salem, NC: Kaplan.

*Smith, T., Groen, A. D., & Wynn, J. W. (2000). Randomized trial of intensive early intervention for children with pervasive developmental disorder. *American Journal on Mental Retardation, 105,* 269–285.

U.S. Congress. (2004). *Individuals with Disabilities Education Improvement Act of 2004: Conference report (to accompany H.R. 1350)* (Report No. 108-779). Washington, DC: U.S. Government Printing Office.

*Valdez, F., & Montgomery, J. K. (1996). Outcomes from two treatment approaches for children with communication disorders in head start. *Journal of Children's Communication Development, 18,* 65–71.

*Venn, M. L., Wolery, M., & Greco, M. (1996). Effects of everyday and every-other-day instruction. *Focus on Autism and Other Developmental Disabilities, 11,* 15–28.

Warren, S. F., Fey, M. E., & Yoder, P. J. (2007). Differential treatment intensity research: A missing link to creating optimally effective communication interventions. *Mental Retardation and Developmental Disabilities, 13,* 70–77.

*Whitehurst, G., Arnold, D., Epstein, J., Angell, A., Smith, M., & Fischel, J. (1994). A picture book reading intervention in day care and home for children from low-income families. *Developmental Psychology, 30,* 679–689.

Wiig, E. H., Secord, W., & Semel, E. (1991). *Clinical Evaluation of Language Fundamentals—Preschool*. New York, NY: The Psychological Corporation.

*Wilcox, M. J., Kouri, T. A., & Caswell, S. B. (1991). Early language intervention: A comparison of classroom and individual treatment. *American Journal of Speech-Language Pathology*, *1*(1), 49–62.

Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (1979). *Preschool Language Scale—Revised Edition*. Columbus, OH: Merrill.

Zimmerman, I. L., Steiner, V. G., & Pond, R. E. (1992). *Preschool Language Scale—Third Edition*. San Antonio, TX: The Psychological Corporation.

Table 1. Clinical questions.

Number	Question
1	What is the effect of frequency, intensity, or duration of service on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?
2	What is the effect of indirect versus direct service on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?
3	What is the effect of individual versus group treatment on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?
4	What is the effect of treatment setting on speech and language outcomes for children birth-to-5 years of age with a speech or language disorder?

Table 2. Quality indicators.

Indicator	Quality marker
Study design	• Controlled trial* • Cohort study • Retrospective case control or single-subject design • Case series • Case study
Blinding	• Assessors blinded* • Assessors not blinded or not stated
Sampling/allocation	• Random sample adequately described* • Random sample inadequately described • Convenience sample adequately described • Convenience sample inadequately described, hand-picked sample, or not stated
Group/participant comparability	• Groups/participants comparable at baseline on important factors (between-subjects design) or participant(s) adequately described (within-subject design)* • Groups/participants not comparable at baseline, comparability not reported, or participant(s) not adequately described
Outcomes	• At least one primary outcome measure is valid and reliable* • Validity unknown but appears reasonable; measure is reliable • Invalid and/or unreliable
Significance	• *p* value reported or calculable* • *p* value neither reported nor calculable
Precision	• Effect size and confidence interval reported or calculable* • Effect size or confidence interval, but not both, reported or calculable • Neither effect size nor confidence interval reported or calculable
Intention to treat (controlled trials only)	• Analyzed by intention to treat* • Not analyzed by intention to treat or not stated

*Indicates highest level of quality in each category.

Table 3. Quality appraisal indicators for included studies.

Citation	Clinical questions 1	2	3	4	Design	Adequate description of study protocol	Assessor blinding	Random sampling or allocation described	Participants comparable/ described	Evidence of treatment fidelity	Significance	Precision	Intention to treat
Barnett et al. (1988)		X		X	Controlled trial	Yes	NR	Yes	Yes	Yes	Yes	No	No
Barratt et al. (1992)	X				Controlled trial	No	Yes	Yes	Yes	Yes	Yes	No	No
Chiara et al. (1995)	X		X		Single-subject design	Yes	No	No	No	Yes	No	No	NA
Colozzi et al. (2008)			X		Single-subject design	Yes	No	NR	Yes	Yes	Yes	Yes	NA
Crain-Thoreson & Dale (1999)				X	Controlled trial	Yes	No	No	Yes	No	Yes	Yes	No
Eiserman et al. (1990)	X	X	X	X	Controlled trial	Yes	Yes	No	Yes	Yes	Yes	Yes	NR
Eiserman et al. (1992)	X	X	X	X	Controlled trial	Yes	Yes	No	Yes	Yes	Yes	Yes	NR
Gibbard (1994): Experiment 2		X			Controlled trial	No	NR	No	Yes	No	Yes	Yes	NR
Harris et al. (1990)				X	Controlled trial	No	NR	NR	Yes	No	Yes	Yes	NR

Lonigan & Whitehurst (1998)	X	X	X	Controlled trial	Yes	Yes	No	Yes	Yes	Yes	Yes	No
Luiselli et al. (2000)	X			Controlled trial	Yes	No	No	NR	Yes	Yes	No	NR
Rafferty et al. (2003)			X	Controlled trial	No	No	No	No	No	Yes	Yes	NR
Smith et al. (2000)	X			Controlled trial	Yes	Yes	Yes	Yes	Yes	Yes	Yes	NR
Valdez & Montgomery (1996)			X	Controlled trial	No	No	Yes	Yes	No	Yes	No	NR
Venn et al. (1996)	X			Single-subject design	Yes	No	NR	Yes	Yes	No	No	NA
Whitehurst et al. (1994)	X			Controlled trial	Yes	Yes	No	Yes	No	Yes	Yes	NR
Wilcox et al. (1991)	X	X	X	Controlled trial	Yes	NR	No	Yes	Yes	Yes	Yes	NR

Note. NA = not applicable; NR = not reported or calculable.

Table 4. Participant and intervention characteristics of included studies.

Citation	*n*	Reported age range (and/or mean) in months	Gender		Reported medical and/or SLP diagnosis	Intervention
			Male	Female		
Barnett et al. (1988)	39	35–59 (44)	11	28	Speech and/or language delay	Individualized pragmatic approach focusing on social interaction, language stimulation, and speech development
Barratt et al. (1992)	39	37–43 (40)	27	12	Developmental language delay	Language development through play in addition to structured work on individual child's language needs
Chiara et al. (1995)	1	59	1	0	Short gut syndrome and developmental delay	5-s constant time delay procedure
Colozzi et al. (2008)	4	43–52	3	1	ASD and/or moderate-severe developmental disabilities	A simultaneous physical and verbal prompting procedure
Crain-Thoreson & Dale (1999)	32	39–66 (52)	22	10	Mild to moderate language delay	Dialogic reading
Eiserman et al. (1990)	40	37–58 (41)	33	7	Moderate speech and language disorder	Phonetic and phonological approaches including demonstration of sound placement, sound discrimination, sound practice, relationship between sounds and language
Eiserman et al. (1992)[a]	12	(64)	NR	NR	Moderate speech and language disorder	Phonetic and phonological approaches including demonstration of sound placement, sound discrimination, sound practice, relationship between sounds and language
Gibbard (1994): Experiment 2	25	27–39 (32)	19	6	Expressive language delay	Structured teaching methods and games to increase linguistic complexity
Harris et al. (1990)	10	49–66 (57)	8	2	ASD	Developmentally organized and language focused preschool combining incidental learning and structured teaching

Lonigan & Whitehurst (1998)[b]	29	33–60 (45)	NR	NR	Receptive and expressive vocabulary delay	Dialogic reading
Luiselli et al. (2000)	16	26–57 (39)	15	1	ASD	Discrete trial instruction
Rafferty et al. (2003)	96	33–57 (48)	68	28	Preschoolers with disabilities	Developmentally organized and language-focused preschool combining incidental learning and structured teaching both individually and in groups
Smith et al. (2000)	28	NR (36)	23	5	ASD	Discrete trial instruction
Valdez & Montgomery (1996)	40	36–60 (NR)	NR	NR	Speech and language disorder	Treatment targeted concept development (not further specified)
Venn et al. (1996)	2	Participant 1: 66; Participant 2: 43	2	0	Participant 1: ASD; Participant 2: ASD and developmental deficits	Constant time delay
Whitehurst et al. (1994)	70	NR (41)	39	31	Vocabulary and expressive language delays	Dialogic reading
Wilcox et al. (1991)	20	20–47 (26)	NR	NR	Language delays	Interactive modeling including high-density lexical models in a conversational format embedded in ongoing activities

Note. SLP = speech-language pathologist; ASD = autism spectrum disorder; NR = not reported.
[a]Follow-up to Eiserman et al. (1990); only continuing cohort included.
[b]High compliance group only.

Table 5. Dosage comparison (Question 1) outcomes summary table.

Citation	Intervention schedule	Service delivery models compared (assigned direction of effect size)	Outcome measures	Findings (condition favored)	Effect size [95% CI]
Barratt et al. (1992)	More frequent treatment group: 40-min sessions, 4 sessions/week over 2 separate 3-month periods, for a maximum of 24 sessions Weekly group: 40-min sessions,1 session/week for 6 months, for a maximum of 24 sessions	1 session/week (negative effect) versus 4 sessions/week (positive effect)	RDLS Comprehension subscale	*ns*	NR
			RDLS Expression subscale	*p* = .02 (4 sessions/week treatment)	NR
Chiara et al. (1995)	Small group massed trial: 10 trials/day presented in 1 session Individual distributed trial treatment: 10 trials/day distributed across 10 sessions	1 session/day (negative effect) versus 10 sessions/day (positive effect)	Picture-naming efficiency to meet criterion	NR	NR
Eiserman et al. (1990)	Clinic-based direct group treatment: 1-hr sessions,1 session/week for 7 months Home-based indirect individual treatment: 20–30-min sessions, 4 sessions/week for 7 months	1 session/week and less treatment (negative effect) versus 4 sessions/week and more treatment (positive effect)	GFTA—number of errors	*ns*	0.61 [–0.04, 1.23]
			GFTA—percentile rank	*ns*	0.53 [–0.11, 1.15]
			PLS	*ns*	0.61
			TACL–R	*ns*	0.38
			Parent–child language sample: DSS	*ns*	0.08
			Parent–child language sample: number of unintelligible utterances	*ns*	0.5 [–0.15, 1.13]

			Parent–child language sample: percentage of child utterances— responses to requests	*p* = .03 (4 sessions/week treatment)	0.82 [0.15, 1.46]
			Parent–child language sample: percentage of child spontaneous utterances	*p* = .004 (1 session/week treatment)	–1.17 [–1.82, 0.47]
			SLP–child language sample: DSS	*ns*	0.29 [–0.34, 0.91]
			SLP–child language sample: number of unintelligible utterances	*p* = .04 (4 sessions/week treatment)	0.74 [0.09, 1.37]
Eiserman et al. (1992)[a]	Clinic-based direct group treatment: 1–hr session, 1 session/week for 42 months Home-based indirect individual treatment: 20–30-min session, 4 sessions/week for 42 months	1 session/week and less treatment (negative effect) versus 4 sessions/week and more treatment (positive effect)	BDI Communication DQ	*ns*	–0.42 [–1.55, 0.77]
			GFTA—number of errors	*ns*	0.42 [–0.74, 1.58]
			GFTA—percentile rank	*ns*	0.83 [–0.43, 1.95]
			TACL–R (Total DQ)	*ns*	0.07 [–1.08, 1.21]
			SPELT percentile rank:	*ns*	–0.46 [–1.58, 0.74]
Lonigan & Whitehurst (1998)[b]	School-based direct treatment: 10 min/day for 6 weeks Home group: daily for 6 weeks School + home group received both intervention schedules	Once daily treatment (negative effect) versus twice daily treatment (positive effect)	PPVT		
			School versus school + home	*ns*	–0.2 [–1.1, 0.7]
			Home versus school + home	*ns*	–0.34 [–1.37, 0.73]
			EOWPVT		
			School versus school + home	*ns*	0.01 [–0.88, 0.91]

			Home versus school + home	*ns*	–0.59 [–1.62, 0.52]
			ITPA: Verbal expression subtest		
			School versus school + home	$p < .05$ (twice daily treatment)	1.07 [0.08, 1.97]
			Home versus school + home	$p < .05$ (twice daily treatment)	1.25 [0.03, 2.3]
			MLU		
			School versus school + home	$p < .05$ (twice daily treatment)	1.61 [0.5, 2.58]
			Home versus school+ home	*ns*	0.84 [–0.3, 1.87]
			Number of different words		
			School versus school + home	*ns*	0.79 [–0.19, 1.71]
			Home versus school + home	$p < .05$ (twice daily treatment)	1.77 [0.44, 2.86]
Luiselli et al. (2000)	Group 1: on average received 11.8 hr/week over 11.6 months for a total 583.5 hr	Fewer hours/week (negative effect) versus more hours/week of treatment (positive effect)	Communication subscale of ELAP	*ns*	NR

	Group 2: on average received 15.6 hr/week over 7.2 months for a total of 455 hr Group 2 received significantly more hours/week of treatment (There was no significant difference between the two groups on total amount of treatment or duration.)		Communication subscale of LAP	*ns*	NR
Smith et al. (2000)	Intensive: 30 hr/week gradually reduced after 2–3 years. On average, group received 2,137.8 hr of treatment over 33.4 months Less intensive: 5 hr/week of parent training and 5 hr/week of treatment provided by parent. Parent training provided for 3–9 months.	5–10 hr weekly and smaller dosage of treatment (negative effect) versus 30 hr weekly and greater dosage of treatment (positive effect)	RDLS Comprehension subscale	*ns*	0.49 [–0.27, 1.23]
			RDLS Expression subscale	*ns*	0.37 [–0.39, 1.11]
			RDLS Total score	$p < .05$ (higher dosage)	0.65 [–0.13, 1.39]
			Vineland Communication subscale	*ns*	0.28 [–0.47, 1.02]
Venn et al. (1996)	Treatment was delivered every day for one set of stimuli and every other day for another until preset criterion was reached.	Every other day (negative effect) versus everyday (positive effect) treatment	Participant 1: number naming	NR	NR
			Participant 2: letter naming	NR	NR
Whitehurst et al. (1994)	Group 1: School-based direct: 10–min sessions, 5 sessions/week for 6 weeks Average number of sessions = 16.3 Group 2: Received school-based + home-based indirect: NR for 6 weeks	Fewer total treatment sessions (negative effect) versus more total treatment sessions (positive effect)	PPVT: posttreatment	*ns*	0.13 [–0.47, 0.72]
			PPVT: 6-month follow-up	*ns*	0.26 [–0.39, 0.89]
			EOWPVT–R: posttreatment	$p = .04$ (more total treatment	0.31 [–0.29, 0.9]

	Average number of sessions = 34.58			sessions)	
			EOWPVT–R: 6-month follow-up	*ns*	0 [–0.65, 0.65]
			Our Word (posttreatment only)-expressive test devised for study	*ns*	0.36 [–0.24 0.95]
			ITPA: posttreatment	*ns*	0.07 [–0.53, 0.66]
Wilcox et al. (1991)	Classroom-based group treatment: 3-hr sessions twice weekly over 12–16 weeks for a total of 24 sessions Pull-out individual treatment: 45-min sessions twice weekly over 12–16 weeks for a total of 24 sessions	90 min/week (negative effect) versus 6 hr/week of treatment (positive effect)	Number of words used productively in spontaneous speech in the home and treatment setting		
			Number of words targeted	*ns*	0.56 [–0.36, 1.42]
			Productive use of target words (treatment and home)	*ns*	0.66 [–0.27, 1.53]
			Overall use of target words (treatment and home)	*ns*	0.24 [–0.65, 1.11]

Note. CI = confidence interval; RDLS = Reynell Developmental Language Scales; NR = not reported or calculable; GFTA = Goldman Fristoe Test of Articulation; PLS = Preschool Language Scale; TACL–R = Test for Auditory Comprehension of Language—Revised; SLP = speech-language pathologist; DSS = developmental sentence score; BDI = Batelle Developmental Inventory; DQ = developmental quotient; SPELT = Structured Photographic Expressive Language Test; PPVT = Peabody Picture Vocabulary Test; EOWPVT–R = Expressive One-Word Picture Vocabulary Test—Revised; ITPA = Illinois Test of Psycholinguistic Abilities; MLU = mean length of utterance; ELAP = Early Learning Accomplishment Profile; LAP = Learning Accomplishment Profile; .

[a]Continuing cohort only.

[b]High compliance only.

Table 6. Direct versus indirect treatment (Question 2) outcomes summary table.

Citation	Intervention schedule	Service delivery models compared (assigned direction of effect size)	Outcome measures	Findings	Effect size [95% CI]
Barnett et al. (1988)	Center-based direct treatment: 2.5-hr sessions, 4 sessions/week for 13 weeks Home-based indirect treatment group: 15-min sessions twice daily for 13 weeks Additionally, parents received 2.5-hr training sessions, 9 sessions total	SLP-delivered treatment (negative effect) versus parent-delivered treatment (positive effect)	Direct treatment group		
			PLS–R	*ns*	NR
			AAPS	*ns*	NR
			Indirect treatment group		
			PLS–R	$p < .01$	NR
			AAPS	$p < .05$	NR
Eiserman et al. (1990)	Clinic-based direct treatment group: 1 hr once weekly for 7 months Home-based indirect treatment group: 20–30-min sessions, 4 sessions/week for 7 months	SLP-delivered treatment (negative effect) versus parent-delivered treatment (positive effect)	GFTA—number of errors	*ns*	0.61 [–0.04, 1.23]
			GFTA—percentile rank	*ns*	0.53 [–0.11, 1.15]
			PLS (Total DQ)	*ns*	0.61
			TACL–R (Total DQ)	*ns*	0.38
			Parent–child language sample: DSS	*ns*	0.08
			Parent–child language sample: number of unintelligible utterances	*ns*	0.5 [–0.15, 1.13]
			Parent–child language sample: percentage of child utterances- responses to requests	$p = .03$ (indirect)	0.82 [0.15, 1.46]
			Parent–child language sample: percentage of child spontaneous utterances	$p = .004$ (direct)	–1.17 [–1.82, -0.47]

			SLP–child language sample-DSS	*ns*	0.29 [–0.34, 0.91]
			SLP–child language sample: number of unintelligible utterances	*p* = .04 (indirect)	0.74 [0.09, 1.37]
Eiserman et al. (1992)[a]	Clinic-based direct group treatment: 1 hr once weekly for 42 months Home-based indirect individual treatment: 20–30-min sessions, 4 sessions/week for 42 months	SLP-delivered treatment (negative effect) versus parent-delivered treatment (positive effect)	BDI Communication DQ	*ns*	–0.42 [–1.55, 0.77]
			GFTA—number of errors	*ns*	0.42 [–0.74, 1.16]
			GFTA—percentile rank	*ns*	0.83 [–0.43, 1.95]
			TACL–R (Total DQ)	*ns*	0.07 [–1.08, 1.21]
			SPELT percentile rank	*ns*	–0.46 [–1.58, 0.74]
Gibbard (1994): Experiment 2	Direct: 30-min sessions, 1 session/week for 6 months Indirect: NR for 6 months	SLP-delivered treatment (negative effect) versus parent-delivered treatment (positive effect)	RDLS Comprehension subscale	*ns*	0.8 [–0.23, 1.74]
			RDLS Expressive subscale	*ns*	0.33 [–0.64, 1.27]
			DLSPT One Word scores	*ns*	0.79 [–0.23, 1.74]
			DLSPT Total scores	*ns*	0.78 [–0.24, 1.73]
			RAPT Grammatical ability	*ns*	0.74 [–0.28, 1.68]
			RAPT Information	*ns*	0.34 [–0.63, 1.29]
			Language sample: One word scores	*ns*	–0.53 [–1.47, 0.46]
			Language sample: Total scores	*ns*	0.45 [–0.54, 1.39]
			MLU	*p* = .008 (indirect)	1.24 [0.14, 2.2]
			Parental report of expressive vocabulary	*ns*	0.14 [–0.82, 1.08]
			Parental report of phrase length	*ns*	0.44 [–0.54, 1.38]

Note. CI = confidence interval; SLP = speech-language pathologist; PLS–R = Preschool Language Scale—Revised; NR = not reported or calculable; AAPS = Arizona Articulation Proficiency Scale; GFTA = Goldman Fristoe Test of Articulation; PLS = Preschool Language Scale; DQ = developmental quotient; TACL–R = Test for Auditory Comprehension of Language—Revised; DSS = developmental sentence score; BDI = Batelle Developmental Inventory; SPELT =

Structured Photographic Expressive Language Test; RDLS = Reynell Developmental Language Scales; DLSPT = Derbyshire Language Scheme Picture Test; RAPT = Renfrew Action Picture Test; MLU = mean length of utterance.

[a]Continuing cohort only.

Table 7. Individual versus group treatment (Question 3) outcomes summary table.

Citation	Intervention schedule	Service delivery models compared (assigned direction of effect size)	Outcome measures	Findings	Effect size [95% CI]
Chiara et al. (1995)	Small group massed trial: 10 trials/day presented in one session Individual distributed trial instruction: 10 trials/day distributed across 10 sessions	Small group of 2–3 children (negative effect) versus individual treatment (positive effect)	Picture-naming efficiency to meet criterion	NR	NR
Colozzi et al. (2008)	Individual: 6 min/day Small group: 24 min/day	Group of 4 children (negative effect) versus individual treatment (positive effect)	Verbal imitation	NR	NR
Eiserman et al. (1990)	Clinic-based direct treatment group: 1 hr weekly for 7 months Home-based indirect treatment group: 20–30-min sessions, 4 sessions/week for 7 months	Small group of 2 children (negative effect) versus individual treatment (positive effect)	GFTA—number of errors	*ns*	0.61 [–0.04, 1.23]
			GFTA—percentile rank	*ns*	0.53 [–0.11, 1.15]
			PLS (Total DQ)	*ns*	0.61
			TACL–R (Total DQ)	*ns*	0.38
			Parent–child language sample: DSS	*ns*	0.08
			Parent–child language sample: number of unintelligible utterances	*ns*	0.5 [-0.15, 1.13]
			Parent–child language sample: percentage of child utterances— responses to requests	$p = .03$ (individual)	0.82 [0.15, 1.46]

			Parent–child language sample: percentage of child spontaneous utterances	*p* = .004 (group)	–1.17 [–1.82, –0.47]
			SLP–child language sample: DSS	*ns*	0.29 [–0.34, 0.91]
			SLP–child language sample: number of unintelligible utterances	*p* = .04 (individual)	0.74 [0.09, 1.37]
Eiserman et al. (1992)[a]	Clinic-based direct group treatment: 1 hr eekly for 42 months Home-based indirect individual treatment: 20–30 min sessions, 4sessions/week for 42 months	Small group of 2 children (negative effect) versus individual treatment (positive effect)	BDI Communication DQ	*ns*	–0.42 [–1.55, 0.77]
			GFTA—number of errors	*ns*	0.42 [–0.74, 1.16]
			GFTA—percentile rank	*ns*	0.83 [–0.43, 1.95]
			TACL–R (Total DQ)	*ns*	0.07 [–1.08, 1.21]
			SPELT percentile rank	*ns*	0.46 [–1.58, 0.74]
Lonigan & Whitehurst (1998)[b]	School-based direct treatment group: 10 min daily for 6 weeks Home-based indirect individual treatment: daily for 6 weeks	Group of ≤5 children (negative effect) versus individual treatment (positive effect)	PPVT	*ns*	0.14 [–0.76, 1.04]
			EOWPVT–R	*ns*	0.53 [–0.4, 1.42]
			ITPA	*ns*	–0.12 [–1.01, 0.78]
			MLU	*ns*	0.59 [–0.37, 1.5]
			Number of different words	*ns*	–0.48 [–1.39, 0.47]

Wilcox et al. (1991)	Classroom-based group treatment: 3-hr sessions, 2 sessions/week over 12–16 weeks for a total of 24 sessions Pull-out individual treatment: 45-min sessions, 2 sessions/week over 12–16 weeks for a total of 24 sessions	Classroom of 12–14 children (negative effect) versus individual treatment (positive effect)	Number of words used productively in spontaneous speech in the home and treatment setting		
			Number of words targeted	*ns*	–0.56 [–1.42, 0.36]
			Productive use of target words (treatment and home)	*ns*	–0.66 [–1.53, 0.27]
			Overall use of target words (treatment and home)	*ns*	–0.24 [–1.11, 0.65]

Note. CI = confidence interval; NR = not reported or calculable; GFTA= Goldman Fristoe Test of Articulation; PLS = Preschool Language Scale; DQ = developmental quotient; TACL–R = Test of Auditory Comprehension of Language—Revised; DSS = developmental sentence score; SLP= speech-language pathologist; BDI = Batelle Developmental Inventory; SPELT = Structured Photographic Expressive Language Test; PPVT = Peabody Picture Vocabulary Test; EOWPVT–R = Expressive One-Word Picture Vocabulary Test—Revised; ITPA = Illinois Test of Psycholinguistic Abilities; MLU = mean length of utterance.
[a]Continuing cohort only.
[b]High compliance only.

Table 8. Treatment setting comparison (Question 4) outcomes summary table.

Citation	Intervention schedule	Service delivery models compared (assigned direction of effect size)	Outcome measures	Findings	Effect size [95% CI]
Barnett et al. (1988)	Center-based direct treatment: 2.5-hr sessions, 4 sessions/week for 13 weeks Home-based indirect treatment group: 15-min sessions, twice daily for 13 weeks Additionally, parents received 2.5-hr training sessions, 9 sessions total	Center-based (negative effect) versus home-based treatment (positive effect)	Center-based group		
			PLS–R	*ns*	NR
			AAPS	*ns*	NR
			Home-based group		
			PLS–R	$p < .01$	NR
			AAPS	$p < .05$	NR
Crain-Thoreson & Dale (1999)	Clinic-based direct treatment group: 4 sessions weekly for 8 weeks Home-based indirect treatment group: at least 4 sessions weekly for 8 weeks	Clinic-based (negative effect) versus home-based treatment (positive effect)	MLU	*ns*	–0.43[–1.24, 0.42]
			Number of utterances	*ns*	–0.02 [–0.85, 0.8]
			Lexical diversity	*ns*	–0.25 [–1.07, 0.59]
			PPVT	*ns*	0.14 [–0.68, 0.97]
			EOWPVT–R	*ns*	0.4 [–0.44, 1.22]
Eiserman et al. (1990)	Clinic-based direct treatment group: 1 hr/week for 7 months Home-based indirect treatment group: 20–30-min sessions, 4	Clinic-based (negative effect versus home-based treatment (positive effect)	GFTA—number of errors	*ns*	0.61 [–0.04, 1.23]
			GFTA—percentile rank	*ns*	0.53 [–0.11, 1.15]
			PLS (Total DQ)	*ns*	0.61

	sessions/week for 7 months		TACL–R (Total DQ)	*ns*	0.38
			Parent–child language sample: DSS	*ns*	0.08
			Parent–child language sample: number of unintelligible utterances	*ns*	0.5 [–0.15, 1.13]
			Parent–child language sample: percentage of child utterances—responses to requests	*p* = .03 (home)	0.82 [0.15, 1.46]
			Parent–child language sample: percentage of child spontaneous utterances	*p* = .004 (clinic)	–1.17 [–1.82, –0.47]
			SLP–child language sampl: DSS	*ns*	0.29 [–0.34, 0.91]
			SLP–child language sample: number of unintelligible utterances	*p* = .04 (home)	0.74 [0.09, 1.37]
Eiserman et al. (1992)[a]	Clinic-based direct group treatment: 1 hr/week for 42 months Home-based indirect individual treatment: 20–30-min sessions, 4 sessions/week for 42 months	Clinic-based (negative effect) versus home-based treatment (positive effect)	BDI Communication DQ	*ns*	–0.42 [–1.55, 0.77]
			GFTA—number of errors	*ns*	0.42 [–0.74, 1.16]
			GFTA—percentile rank	*ns*	0.83 [–0.43, 1.95]
			TACL–R (Total DQ)	*ns*	0.07 [–1.08, 1.21]
			SPELT percentile rank	*ns*	0.46 [–1.58, 0.74]

Harris et al. (1990)	NR	Segregated preschool classrooms (negative effect) versus integrated preschool classrooms (positive effect)	PLS (language age)	*ns*	0.51 [–0.8, 1.71]
			Rate of language development (language age/chronological age)	*ns*	0.2 [–1.06, 1.43]
Lonigan & Whitehurst (1998)[b]	School-based direct treatment group: 10 min daily for 6 weeks Home group: daily for 6 weeks	School-based (negative effect) versus home-based treatment (positive effect)	PPVT	*ns*	0.14 [–0.76, 1.04]
			EOWPVT	*ns*	0.53 [–0.4, 1.42]
			ITPA: Verbal Expression subtest	*ns*	–0.12 [–1.01, 0.78]
			MLU	*ns*	0.59 [–0.37, 1.5]
			Number of different words	*ns*	–0.48 [–1.39, 0.47]
Rafferty et al. (2003)	NR for 7–8 months	Segregated preschool classroom (negative effect) versus inclusive preschool classroom (positive effect)	Severe group		
			PLS–3 Auditory comprehension	$p < .01$ (inclusive class)	0.81 [0.19, 1.38]
			PLS–3 Expressive	$p < .01$ (inclusive class)	0.84 [0.22, 1.42]
			Less severe group		
			PLS–3 Auditory comprehension	*ns*	0.28 [–0.53, 1.08]
			PLS–3 Expressive	*ns*	–0.05 [–0.85, 0.75]
Valdez & Montgomery (1996)	90-min session weekly for 6 months, 36 hr of total treatment	Pull-out (negative effect) versus classroom-based treatment (positive effect)	CELF–P Receptive	*ns*	NR
			CELF–P Expressive	*ns*	NR
			CELF–P Total	*ns*	NR

Wilcox et al. (1991)	Classroom-based group treatment: 3-hr sessions twice weekly for 12–16 weeks for a total of 24 sessions	Pull-out (negative effect) versus classroom-based treatment (positive effect)	Number of words used productively in spontaneous speech in the home and treatment setting		
	Pull-out individual treatment: 45-min sessions twice weekly for 12–16 weeks for a total of 24 sessions		Number of words targeted	*ns*	0.56 [–0.36, 1.42]
			Productive use of target words (treatment and home)	*ns*	0.66 [–0.27, 1.53]
			Overall use of target words (treatment and home)	*ns*	0.24 [–0.65, 1.11]

Note. CI = confidence interval; PLS–R = Preschool Language Scale—Revised; NR = not reported or calculable; AAPS =Arizona Articulation Proficiency Scale; MLU = mean length of utterance; PPVT = Peabody Picture Vocabulary Test; EOWPVT–R = Expressive One-Word Picture Vocabulary Test—Revised; GFTA = Goldman Fristoe Test of Articulation; PLS = Preschool Language Scale; DQ =developmental quotient; TACL–R = Test of Auditory Comprehension of Language—Revised; DSS = developmental sentence score; SLP = speech-language pathologist; BDI = Batelle Developmental Inventory; SPELT = Structured Photographic Expressive Language Test; ITPA = Illinois Test of Psycholinguistic Abilities; PLS–3 = Preschool Language Scale, Third Edition; CELF–P = Clinical Evaluation of Language Fundamentals—Preschool.

[a]Continuing cohort only.

[b]High compliance only.

Table 9. Cultural and linguistic characteristics of study participants.

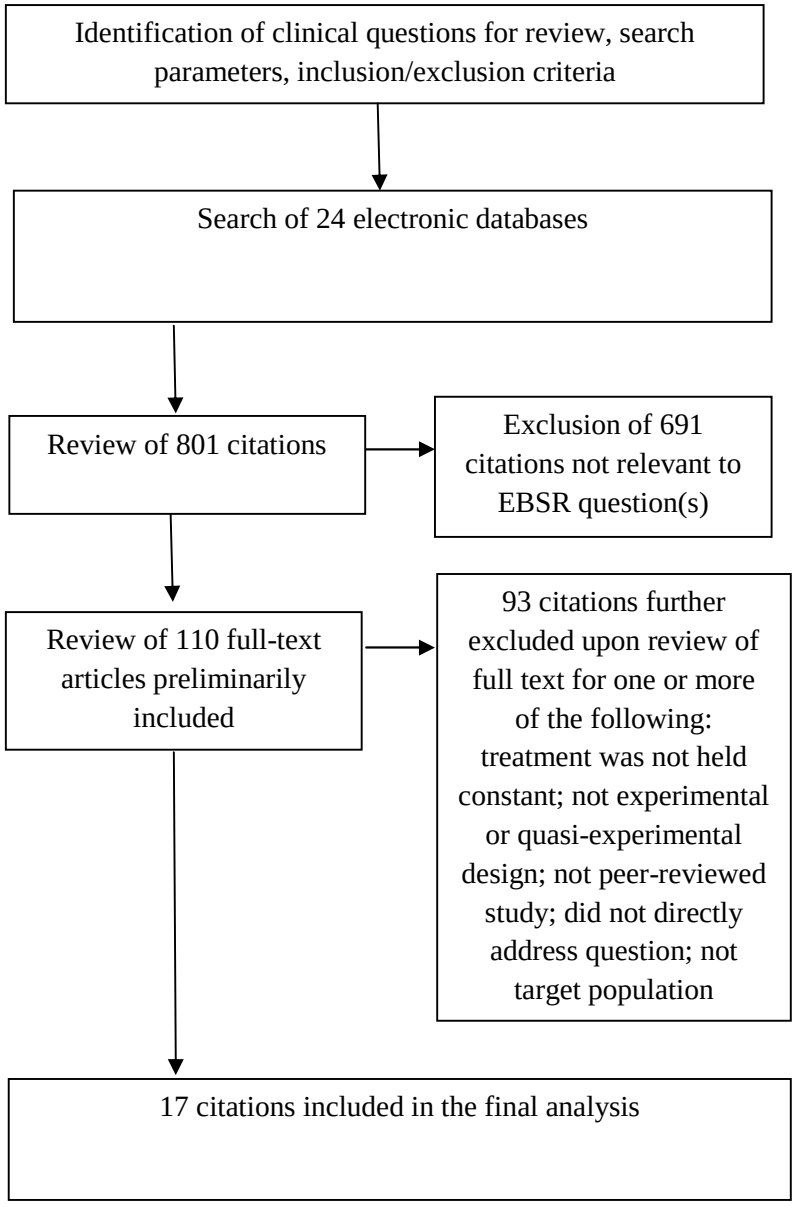
Citation	Study location	Socioeconomic status as reported in article	Parental education	Family status	Race/ ethnicity as reported in article	English as primary language in home	Parental employment	Differences in results related to cultural or linguistic factors
Barnett et al. (1988)	USA	All families "middle income"	"Most of the parents had attended college"	95% both parents in home	NR	NR	NR	NR
Barratt et al. (1992)	England	NR	NR	NR	Afro-Caribbean: 64% White: 28% Other: 8%	NR	NR	Whites and non-Whites had similar scores in comprehension and expression at the outset of the study. Whites and non-Whites made similar gains in comprehension (p = .28), but Whites made significantly greater gains in expression (p < .01).
Chiara et al. (1995)	USA	NR	NR	NR	NR	NR	NR	NR
Colozzi et al. (2008)	USA	NR	NR	NR	NR	NR	NR	NR
Crain-Thoreson & Dale (1999)	USA	NR	NR	NR	NR	NR	NR	NR
Eiserman et al. (1990)/ Eiserman et al. (1992)	USA	Mean HHI = $27,449	Mean years of schooling: mothers 14.25, fathers 14.5	95% both parents in home	Caucasian: 100%	100%	Mothers: 37% employed; mean hr/week employed=	NR

							9.65; 17.5% employed as technical/ managerial or above Fathers: mean hr/week employed = 40.75; 67.5% employed as technical managerial or above	
Gibbard (1994): Experiment 2	England	Social class 1: *N* = 0 2: *N* = 5 3M: *N* = 3 3N: *N* = 5 4: *N* = 0 5: *N* = 0 Unemployed: *N* = 4	NR	NR	NR	NR	NR	NR
Harris et al. (1990)	USA	NR	NR	NR	NR	NR	NR	NR
Lonigan & Whitehurst (1998)	USA	"low income families"	NR	NR	African American: 91.2%	100%	NR	NR
Luiselli et al. (2000)	USA	NR	NR	NR	NR	NR	NR	NR
Rafferty et al. (2003)	USA	NR	48% of mothers and 40% of fathers beyond high school level education	80% both parents in home	Caucasian: 87%	NR	Mothers: 45%; fathers: 92%	NR

Smith et al. (2000)	USA	Median HHI: $40,000–$50,000	Mean years of schooling: mothers 13, fathers 14	71% both parents in home	White: 50% Hispanic: 22% African American: 14% Asian: 14%	NR	NR	NR
Valdez & Montgomery (1996)	USA	All eligible for placement in Head Start	NR	NR	African American: 100%	NR	NR	NR
Venn et al. (1996)	USA	NR	NR	NR	NR	NR	NR	NR
Whitehurst et al. (1994)	USA	"Low-income families"	Mean years of schooling: mothers 12.59, partners 12.32	46% married, 58% living with husband/partner	African American: 55% Hispanic: 23% White: 22%	Mothers: 90%; partners: 82%	Mothers: 91%; partners: 70%	NR
Wilcox et al. (1991)	USA	NR	NR	NR	NR	NR	NR	NR

Note. HHI = household income; NR = not reported.

Figure 1. Flowchart of study identification process.



Appendix A

Databases, Search Dates, and Expanded Search Terms Used in Systematic Search

Date	Database	Search terms
9/24/09–10/14/09	PubMed	("Rehabilitation of Speech and Language Disorders"[Mesh] OR "Communication Disorders/therapy"[Mesh] OR "Child Development Disorders, Pervasive/therapy"[Mesh] OR "Developmental Disabilities/therapy"[Mesh] OR "Learning Disorders/therapy"[Mesh] OR "Mental Retardation/therapy"[Mesh] OR "Speech-Language Pathology"[Mesh] OR "Hearing Loss/rehabilitation"[Mesh] OR "Hearing Loss/therapy"[Mesh]) AND (“Classroom direct” OR “classroom based” OR “collaborative consultation” OR Hanen OR “dosage of service” OR “Parent Training” OR Pull-out OR clinic based OR group size OR "Push in" OR ((Indirect OR direct OR intensity OR home OR intensive OR inclusion) AND (therapy OR treatment OR model OR intervention))) Limits: Humans, English, Newborn: birth–1 month, Infant: 1–23 months, Preschool Child: 2–5 years
9/24/09–10/14/09	PubMed	("Rehabilitation of Speech and Language Disorders"[Mesh] OR "Communication Disorders/therapy"[Mesh] OR "Child Development Disorders, Pervasive/therapy"[Mesh] OR "Developmental Disabilities/therapy"[Mesh] OR "Learning Disorders/therapy"[Mesh] OR "Mental Retardation/therapy"[Mesh] OR "Speech-Language Pathology"[Mesh] OR "Hearing Loss/rehabilitation"[Mesh] OR "Hearing Loss/therapy"[Mesh]) AND (mainstream OR home based OR small group OR service deliver* OR “individual therapy” OR “individual training” OR “individual teaching” OR “individual intervention” OR "parent managed" OR "parent intervention" OR "parent directed" OR ((Indirect OR direct OR intensity OR intensive) AND (train OR training OR instruction OR class OR classes OR classroom)) OR ((“one-to-one” OR integrated OR inclusive OR segregated OR “in-class” OR “out-of-class”) AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) Limits: Humans, English, Newborn: birth–1 month, Infant: 1–23 months, Preschool Child: 2–5 years

10/14/09	CINAHL	(intellectual* disab* OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR Autis* OR Pervasive Development* Disorder OR Asperger* OR “Savant Syndrome” OR "Developmental delay" OR developmental disab* OR “Multiple disabilities” OR severe disab* OR Mental retard* OR Deaf OR “hard of hearing” OR hearing impair* OR hearing loss OR “Complex communication needs” OR stutter* OR fluency OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND (“classroom based” OR mainstream OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR “individual therapy” OR “individual training” OR “individual teaching” OR “individual intervention” OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR ((Indirect OR direct OR intensity OR intensive OR “one-to-one” OR integrated OR inclusive OR segregated OR “in-class” OR “out-of-class”) AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) Publication Year: 1975–2009; Peer Reviewed; Exclude MEDLINE records; Age Groups: Infant, Newborn 0–1 month, Infant, 1–23 months, Child, Preschool 2–5 years
10/15/09–10/21/09	Mass Media Complete	(intellectual* disab* OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR Autis* OR Pervasive Development* Disorder OR Asperger* OR “Savant Syndrome” OR "Developmental delay" OR developmental disab* OR “Multiple disabilities” OR severe disab* OR Mental retard* OR Deaf OR “hard of hearing” OR hearing impair* OR hearing loss OR “Complex communication needs” OR stutter* OR fluency OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND (“classroom based” OR mainstream OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR “individual therapy” OR “individual training” OR “individual teaching” OR “individual intervention” OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR ((Indirect OR direct OR intensity OR intensive OR “one-to-one” OR integrated OR inclusive OR segregated OR “in-class” OR “out-of-class”) AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) AND (infant* OR baby OR babies OR NICU OR neonat* OR toddler*

		OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids) Scholarly (Peer Reviewed) Journals; Published Date: 19750101-20091231; Language: English
10/19/09–10/20/09	ComDisDome	KW = (intellectual* disab* OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR Autis* OR Pervasive Development* Disorder OR Asperger* OR “Savant Syndrome” OR "Developmental delay" OR developmental disab* OR “Multiple disabilities” OR severe disab* OR Mental retard* OR Deaf OR “hard of hearing” OR hearing impair* OR hearing loss OR “Complex communication needs” OR stutter* OR fluency OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies) AND KW = (“classroom based” OR mainstream OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR “individual therapy” OR “individual training” OR “individual teaching” OR “individual intervention” OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR ((Indirect OR direct OR intensity OR intensive OR “one-to-one” OR integrated OR inclusive OR segregated OR “in-class” OR “out-of-class”) AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom) AND KW = (infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids) Peer reviewed tab
10/30/09–11/12/09	Education Research Complete	(handicap* OR “special education” OR intellectual* disab* OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR Autis* OR Pervasive Development* Disorder OR Asperger* OR “Savant Syndrome” OR "Developmental delay" OR developmental disab* OR “Multiple

		disabilities” OR severe disab* OR Mental* retard* OR Deaf OR “hard of hearing” OR hearing impair* OR hearing loss OR “Complex communication needs” OR stutter* OR fluency OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND (“classroom based” OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR “individual therapy” OR “individual training” OR “individual teaching” OR “individual intervention” OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR “ parent administered” OR “parent conducted” OR ((Indirect OR direct OR intensity OR intensive OR “one-to-one” OR integrated OR inclusive OR segregated OR “in-class” OR “out-of-class”) AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) AND (infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids) AND SU (AUTISM spectrum disorders OR SPEECH disorders OR COGNITION disorders OR "EDUCATION (Preschool)" OR SPEECH therapy OR COMMUNICATIVE disorders OR “MOTHER & child” OR DEVELOPMENTALLY disabled children OR DEVELOPMENTALLY disabled OR AUTISM OR DEVELOPMENTAL disabilities OR INCLUSIVE education OR “CHILDREN -- Language” OR “CHILDREN with disabilities” OR “AUTISM in children” OR “early intervention” OR “language delay” OR “parent-based intervention” OR “INTERVENTION” OR NURSERY schools OR SPECIAL education OR PRESCHOOL children OR “EDUCATION -- Curricula” OR “SCHOOL management & organization” OR INTERDISCIPLINARY approach) Limits: Scholarly (Peer Reviewed) Journals; Published Date: 19750101-20091231; Language: English
11/12/09–11/24/09	PsycINFO	(handicap* OR “special education” OR intellectual* disab* OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR Autis* OR Pervasive Development* Disorder OR Asperger* OR “Savant Syndrome” OR "Developmental delay" OR developmental disab* OR “Multiple disabilities” OR severe disab* OR Mental* retard* OR Deaf OR “hard of hearing” OR hearing impair* OR hearing loss OR “Complex communication needs” OR stutter* OR fluency OR

		((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND (“classroom based” OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR “individual therapy” OR “individual training” OR “individual teaching” OR “individual intervention” OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR “ parent administered” OR “parent conducted” OR ((Indirect OR direct OR intensity OR intensive OR “one-to-one” OR integrated OR inclusive OR segregated OR “in-class” OR “out-of-class”) AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) AND (infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids) AND SU (“Early Intervention” OR “Parent Training” OR “Speech Disorders” OR “Speech Therapy” OR “Followup Studies” OR “Language Development” OR “Speech Development” OR “Language Disorders” OR “Special Education” OR “Language Delay” OR “Parents” OR “Speech Therapists” OR “Treatment Effectiveness Evaluation” OR “Intervention” OR “Autism” OR “Mild Mental Retardation” OR “Communication Disorders” OR “Moderate Mental Retardation” OR “Delayed Development” OR “Mental Retardation” OR “Speech Characteristics” OR “Pervasive Developmental Disorders” OR "Mainstreaming (Educational)") Publication Year: 1975-2009; Published Date: 19750101-20091231; Peer Reviewed; English; Age Groups: Neonatal (birth–1 mo), Infancy (2–23 mo), Preschool Age (2–5 yrs); Population Group: Human
11/13/09–11/18/09	Science Citation Index Expanded; Social Sciences Citation Index	TS = (handicap* OR "special education" OR intellectual* disab* OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR Autis* OR Pervasive Development* Disorder OR Asperger* OR "Savant Syndrome" OR "Developmental delay" OR developmental disab* OR "Multiple disabilities" OR severe disab* OR Mental* retard* OR Deaf OR "hard of hearing" OR hearing impair* OR hearing loss OR "Complex communication needs" OR stutter* OR fluency OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND Language=(English) AND Document Type=(Article)

		Refined by: Topic=(("classroom based" OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR "individual therapy" OR "individual training" OR "individual teaching" OR "individual intervention" OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR "parent administered" OR "parent conducted" OR ((Indirect OR direct OR intensity OR intensive OR "one-to-one" OR integrated OR inclusive OR segregated OR "in-class" OR "out-of-class") AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom)))) AND Topic=((infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids)) AND Subject Areas=(REHABILITATION OR PEDIATRICS OR EDUCATION, SPECIAL OR PSYCHOLOGY, DEVELOPMENTAL OR LANGUAGE & LINGUISTICS OR PSYCHOLOGY, EDUCATIONAL OR PSYCHOLOGY, CLINICAL OR PSYCHOLOGY, SOCIAL OR EDUCATION & EDUCATIONAL RESEARCH OR PSYCHOLOGY, EXPERIMENTAL OR PSYCHOLOGY OR BEHAVIORAL SCIENCES OR PSYCHOLOGY, MULTIDISCIPLINARY OR FAMILY STUDIES OR SOCIAL SCIENCES, INTERDISCIPLINARY OR PSYCHOLOGY, APPLIED) Timespan=1975-2009. Databases=SCI-EXPANDED, SSCI.
11/19/09–12/11/09	CSA: Social Services Abstracts, Linguistics Language Behaviour Abstracts, Neuroscience Abstracts, ERIC	(handicap* OR "special education" OR intellectual* disab* OR Autis* OR Pervasive Development* Disorder OR Asperger* OR "Savant Syndrome" OR "Developmental delay" OR developmental disab* OR "Multiple disabilities" OR severe disab* OR Mental* retard* OR Deaf OR "hard of hearing" OR hearing impair* OR hearing loss OR "Complex communication needs" OR stutter* OR fluency OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND ("classroom based" OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR "individual therapy" OR "individual training" OR "individual teaching" OR "individual intervention" OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR "parent administered" OR "parent conducted" OR ((Indirect OR direct OR intensity OR intensive OR "one-to-one" OR integrated

		OR inclusive OR segregated OR "in-class" OR "out-of-class") AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) AND (infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids) Limit: Peer-Reviewed Journals
12/4/09–12/11/09	EBSCO: Health Source: Nursing/Academic Edition, Psychology and Behavioral Sciences Collection, OR Teacher Reference Center	(handicap* OR "special education" OR intellectual* disab* OR Autis* OR Pervasive Development* Disorder OR Asperger* OR "Savant Syndrome" OR "Developmental delay" OR developmental disab* OR "Multiple disabilities" OR severe disab* OR Mental* retard* OR Deaf OR "hard of hearing" OR hearing impair* OR hearing loss OR "Complex communication needs" OR stutter* OR fluency OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND ("classroom based" OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR "individual therapy" OR "individual training" OR "individual teaching" OR "individual intervention" OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR "parent administered" OR "parent conducted" OR ((Indirect OR direct OR intensity OR intensive OR "one-to-one" OR integrated OR inclusive OR segregated OR "in-class" OR "out-of-class") AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) AND (infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR young child* AND young children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids) Scholarly (Peer Reviewed) Journals; Published Date from: 19750101-20091231
12/14/09	Cochrane	"(handicap* OR "special education" OR intellectual* disab* OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR Autis* OR Pervasive Development* Disorder OR Asperger* OR "Savant Syndrome" OR "Developmental delay" OR developmental disab* OR "Multiple

		disabilities" OR severe disab* OR Mental* retard* OR Deaf OR "hard of hearing" OR hearing impair* OR hearing loss OR "Complex communication needs" OR stutter* OR fluency OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) in Title, Abstract or Keywords and ("classroom based" OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR "individual therapy" OR "individual training" OR "individual teaching" OR "individual intervention" OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR "parent administered" OR "parent conducted" OR ((Indirect OR direct OR intensity OR intensive OR "one-to-one" OR integrated OR inclusive OR segregated OR "in-class" OR "out-of-class") AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) in Title, Abstract or Keywords and (infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids) in Title, Abstract or Keywords in Cochrane Database of Systematic Reviews"
12/14/09	Cochrane	"(speech OR language) AND (patholog* OR therap*) in Title, Abstract or Keywords and infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids in Title, Abstract or Keywords in Cochrane Database of Systematic Reviews"
12/14/09	CRD	(Speech OR language) AND (therap* OR patholog*) AND service delivery
12/15/09	CRD	("classroom based" OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR "individual therapy" OR "individual training" OR "individual teaching" OR "individual intervention" OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR "parent administered" OR "parent conducted") AND (infant* OR baby OR toddler* OR newborn* OR child* OR preschool* OR pre-school*) AND (speech OR language)
12/15/09	CRD	(Indirect OR direct OR intensity OR intensive OR "one-to-one" OR integrated OR inclusive OR segregated OR "in-class" OR "out-of-class") AND (infant* OR baby OR toddler* OR newborn* OR

		child* OR preschool* OR pre-school*) AND (speech OR language)
12/16/09	HighWire	▸service delivery speech (all words in title or abstract) ▸infant baby toddler newborn child preschool pre-school (any words anywhere in article) ▸In HighWire-hosted journals ▸From Jan 1975 to Dec 2010
12/16/09	HighWire	▸service delivery language (all words in title or abstract) ▸infant baby toddler newborn child preschool pre-school (any words anywhere in article) ▸In HighWire-hosted journals ▸From Jan 1975 to Dec 2010
12/16/09	HighWire	service delivery AND (infant OR baby OR toddler OR newborn OR child OR preschool OR pre-school) AND (speech OR language)
12/16/09–12/17/09	HighWire	▸Indirect direct intensity intensive integrated mainstream Pull-out clinic-based home-based (any words in title or abstract) ▸infant baby toddler newborn child preschool pre-school (any words anywhere in article) ▸ASHA journals ▸From Jan 1975 to Dec 2010
12/18/09	EBM guidelines	speech
12/18/09	EBM Guidelines	language
12/18/09	DIMDI	speech language service delivery
12/22/09	PsycBite	Keyword: speech Patient Age Group: children
12/22/09	PsycBite	Keyword: language

		Patient Age Group: children
12/22/09	SumSearch	Search for: SPEECH AND SERVICE AND DELIVERY (Focus: TREATMENT, ages: child, subjects: HUMAN)
12/22/09	SumSearch	Search for: LANGUAGE AND SERVICE AND DELIVERY (Focus: TREATMENT, ages: child, subjects: HUMAN)
12/23/09	Trip Database	(speech OR language) AND (pathology OR pathologist OR therapy OR therapist) AND service delivery AND (infant OR baby OR toddler OR newborn OR child OR preschool OR pre-school)
12/23/09	Science Direct	(handicap* OR "special education" OR intellectual* disab* OR Autis* OR Pervasive Development* Disorder OR Asperger* OR "Savant Syndrome" OR "Developmental delay" OR developmental disab* OR "Multiple disabilities" OR severe disab* OR Mental* retard* OR Deaf OR "hard of hearing" OR hearing impair* OR hearing loss OR "Complex communication needs" OR stutter* OR fluency OR ((cognitive OR phonological OR speech OR language OR learning OR reading OR communication) AND (impairment* OR disab* OR disorder* OR delay*)) OR ((Speech OR language) AND (patholog* OR therapy OR therapist OR therapies))) AND ("classroom based" OR mainstream* OR Hanen OR Pull-out OR clinic based OR home based OR small group OR service deliver* OR "individual therapy" OR "individual training" OR "individual teaching" OR "individual intervention" OR "Parent Training" OR "parent managed" OR "parent intervention" OR "parent directed" OR "parent administered" OR "parent conducted" OR ((Indirect OR direct OR intensity OR intensive OR "one-to-one" OR integrated OR inclusive OR segregated OR "in-class" OR "out-of-class") AND (therapy OR treatment OR model OR intervention OR train OR training OR instruction OR class OR classes OR classroom))) AND (infant* OR baby OR babies OR NICU OR neonat* OR toddler* OR perinatal OR newborn* OR child* AND children OR girl OR girls OR boy OR boys OR preschool* OR pre-school* OR kids)

Appendix B

Excluded Studies and Reason for Exclusion

Abrahamsen, E. P., & Smith, R. (2000). Facilitating idiom acquisition in children with communication disorders: Computer vs. classroom. *Child Language Teaching & Therapy, 16,* 227–239.

Different treatments; Wrong population (too old)

Acra, C. F., Katherine, E. B., Peter, C. M., & Keith, G. S. (2009). Social competence in children at risk due to prenatal cocaine exposure: Continuity over time and associations with cognitive and language abilities. *Social Development, 18,* 1002–1014.

No comparison of service delivery models; No clinical question

Affleck, G., McGrade, B. J., McQueeney, M., & Allen, D. (1982). Promise of relationship-focused early intervention in developmental disabilities. *Journal of Special Education, 16*, 413–430.

Different treatments; Both indirect

Affleck, J. Q., Madge, S., Adams, A., & Lowenbraun, S. (1988). Integrated classroom versus resource model: Academic viability and effectiveness. *Exceptional Children, 54*, 339–348.

Wrong population (school-age); Not speech-language pathology

Agnew, J. A., Dorn, C., & Eden, G. F. (2004). Effect of intensive training on auditory processing and reading skills. *Brain and Language, 88,* 21–25.

No comparison of service delivery models

Alborz, A., & McNally, R. (2004). Developing methods for systematic reviewing in health services delivery and organization: An example from a review of access to health care for people with learning disabilities. Part 2. Evaluation of the literature—a practical guide. *Health Information and Libraries Journal, 21,* 227–236.

No clinical question

Aldred, C., Green, J., & Adams, C. (2004). A new social communication intervention for children with autism: Pilot randomised controlled treatment study suggesting effectiveness. *Journal of Child Psychology & Psychiatry, 45,* 1420–1430.

Two different treatments

Alexander, A. W., & Slinger-Constant, A. M. (2004). Current status of treatments for dyslexia: Critical review. *Journal of Child Neurology*, *19*(10), 744–758.

Wrong population

Algozzine, R., Whorton, J. E., & Reid, W. R. (1979). Special class exit criteria: A modest beginning. *Journal of Special Education, 13,* 131–136.

No clinical question

Allard, J. B., & Golden, D. C. (1991). Educational audiology: A comparison of service delivery systems utilized by Missouri schools. *Language, Speech, and Hearing Services in Schools, 22*, 5–11.

Wrong population (school-age); No clinical question

Almost, D., & Rosenbaum, P. (1998). Effectiveness of speech intervention for phonological disorders: A randomized controlled trial. *Developmental Medicine and Child Neurology, 40*, 319–325.

No comparison of service delivery models or dosage

Alpert, C. L., & Kaiser, A. P. (1992). Training parents as milieu language teachers. *Journal of Early Intervention, 16*, 31–52.

No comparison of service delivery models or dosage

American Speech-Language-Hearing Association. (1981, March). Guidelines for the employment and utilization of supportive personnel. *Asha, 23*(3), 165–169.

Not a study

American Speech-Language-Hearing Association. (1983, February). Recommended service delivery models and caseload sizes for speech-language pathology services in the schools. *Asha, 25*(2), 65–70.

Not a study

American Speech-Language-Hearing Association. (1988, November). Utilization and employment of speech-language pathology supportive personnel with underserved populations. *ASHA, 30*(11), 55–56.

Not a study

American Speech-Language-Hearing Association. (1990, April). The role of speech-language pathologists and audiologists in service delivery for persons with mental retardation and developmental disabilities in community settings. Committee on Mental Retardation/Developmental Disabilities. *Asha*(Suppl. 2), 5–6.

No original data; No references

American Speech-Language-Hearing Association. (2000). *Guidelines for the roles and responsibilities of the school-based speech-language pathologist*. Rockville, MD: Author.

Not a study

American Speech-Language-Hearing Association. (2008). *Roles and responsibilities of speech-language pathologists in early intervention: Guidelines.* Rockville, MD: Author.

Not a study

Anan, R. M., Warner, L. J., McGillivary, J. E., Chong, I. M., & Hines, S. J. (2008). Group intensive family training (GIFT) for preschoolers with autism spectrum disorders. *Behavioral Interventions, 23*, 165–180. doi:10.1002/bin.262.

No comparison of service delivery models

Anderson, S. R., Avery, D. L., DiPietro, E. K., & Edwards, G. L. (1987). Intensive home-based early intervention with autistic children. *Education and Treatment of Children, 10,* 352–366.

No comparison of service delivery models

Arends, N., Povel, D.-J., Van Os, E., Michielsen, S., Claassen, J., & Feiter, I. (1991). An evaluation of the visual speech apparatus. *Speech Communication, 10,* 405–414.

Different treatments

Arick, J. R., Young, H. E., Falco, R. A., Loos, L. M., Krug, D. A., Gense, M. H., & Johnson, S. B. (2003). Designing an outcome study to monitor the progress of students with autism spectrum disorders. *Focus on Autism and Other Developmental Disabilities, 18,* 75–87.

No comparison of service delivery models

Arndorfer, R. E., Miltenberger, R. G., Woster, S. H., & Rortvedt, A. K. (1994). Home-based descriptive and experimental analysis of problem behaviors in children. *Topics in Early Childhood Special Education, 14,* 64–87.

No speech-language outcomes

Ault, M. J., Wolery, M., Doyle, P. M., & Gast, D. L. (1989). Review of comparative studies in the instruction of students with moderate and severe handicaps. *Exceptional Children, 55,*

346–356.

No comparison of service delivery models

Awcock, C., & Habgood, N. (1998). Early Intervention Project: Evaluation of WILSTAAR, Hanen and Specialist Playgroup. *International Journal of Language & Communication Disorders, 33*(Suppl.), 500–505.

No clinical question; No comparison of service delivery models

Bagnato, S. J., Jr., & Neisworth, J. T. (1980). The Intervention Efficiency Index: An approach to preschool program accountability. *Exceptional Children, 46,* 264–269.

Not a study

Bailet, L. L., Repper, K. K., Piasta, S. B., & Murphy, S. P. (2009). Emergent literacy intervention for prekindergarteners at risk for reading failure. *Journal of Learning Disabilities, 42,* 336–355.

Not speech-language disorders; "At risk" criteria to enter study

Baker, A. J. L., Piotrkowski, C. S., & Brooks-Gunn, J. (1998). The effects of the Home Instruction Program for Preschool Youngsters (HIPPY) on children's school performance at the end of the program and one year later. *Early Childhood Research Quarterly, 13*, 571–588.

Not children with communication disorders

Baker, E., & McLeod, S. (2004). Evidence-based management of phonological impairment in children. *Child Language Teaching and Therapy, 20*, 261–285.

No clinical question; Service delivery model does not vary

Bamiou, D., Campbell, N., & Sirimanna, T. (2006). Management of auditory processing disorders. *Audiological Medicine, 4*, 46–56.

Not a study

Barlow, J. (1997). *Systematic review of the effectiveness of parent-training programmes in improving behaviour problems in children aged 3-10 years: A review of the literature on parent-training programmes and child behaviour outcome measures*. Health Services Research Unit, University of Oxford, England.

Not speech-language outcomes

Barlow, J., & Parsons, J. (2003). Group-based parent-training programmes for improving emotional and behavioural adjustment in 0-3 year old children (Art No. CD003680). *Cochrane Database of Systematic Reviews*.

No speech-language outcomes

Barnett, D. W., Bell, S. H., Bauer, A., Lentz, F. E., Jr., Petrelli, S., Air, A., … Stollar, S. (1997). The Early Childhood Intervention Project: Building capacity for service delivery. *School Psychology Quarterly, 12*, 293–315.

No clinical question

Barnett, D. W., Daly, E. J., III, Jones, K. M., & Lentz, F. E., Jr. (2004). Response to intervention: Empirically based special service decisions from single-case designs of increasing and decreasing intensity. *Journal of Special Education, 38,* 66–79. doi:10.1177/00224669040380020101.

Wrong population (too old)

Barnett, W. S. (1985). Benefit-cost analysis of the Perry preschool program and its policy implications. *Educational Evaluation & Policy Analysis, 7,* 333–342.

No comparison of service delivery models

Barnett, W. S. (1992). Benefits of compensatory preschool education. *Journal of Human Resources, 27,* 279–312.

Not children with communication disorders

Barnett, W. S. (1993). Benefit-cost analysis of preschool education: Findings from a 25-year follow-up. *American Journal of Orthopsychiatry, 63,* 500–508.

Not children with communication disorders

Barnett, W. S., & Ackerman, D. J. (2006). Costs, benefits, and long-term effects of early care and education programs: Recommendations and cautions for community developers. *Community Development: Journal of the Community Development Society, 37,* 86–100.

No clinical question; Not children with communication disorders

Barnett, W. S., & Escobar, C. M. (1987). The economics of early educational intervention: A review. *Review of Educational Research, 57*, 387–414. doi:10.3102/00346543057004387.

No comparison of service delivery models

Barnett, W. S., & Escobar, C. M. (1989). Research on the cost effectiveness of early educational intervention: Implications for research and policy. *American Journal of Community Psychology, 17*, 677–704.

Not a study

Barnett, W. S., Frede, E. C., Mobasher, H., & Mohr, P. (1988). The efficacy of public preschool programs and the relationship of program quality to efficacy. *Educational Evaluation & Policy Analysis, 10*, 37–49.

Not children with communication disorders

Barnett, W. S., & Pezzino, J. (1987). Cost-effectiveness analysis for state and local decision making: An application to half-day and full-day preschool special education programs. *Journal of Early Intervention, 11*, 171–179. doi:10.1177/105381518701100209.

Mixed population data not separate.

Bashir, A. (1989). Language intervention and the curriculum. *Seminars in Speech and Language, 10*, 181–191.

Not a study

Baxendale, J., Frankham, J., & Hesketh, A. (2001). The Hanen Parent Programme: A parent's perspective. *International Journal of Language & Communication Disorders, 36,* 511–516.

No clinical question; No data

Baxendale, J., & Hesketh, A. (2003). Comparison of the effectiveness of the Hanen Parent Programme and traditional clinic therapy. *International Journal of Language & Communication Disorders, 38,* 397–415. doi: 10.1080/1368282031000121651.

Different treatments

Beckman, P. J., & Kohl, F. L. (1984). The effects of social and isolate toys on the interactions and play of integrated and nonintegrated groups of preschoolers. *Education & Training of the Mentally Retarded, 19,* 169–174.

No clinical question

Beckman, P. J., & Kohl, F. L. (1987). Interactions of preschoolers with and without handicaps in integrated and segregated settings: A longitudinal study. *Mental Retardation, 25*, 5–11.

Unclear if *treatment held constant*

Beilinson, J. S., & Olswang, L. B. (2003). Facilitating peer-group entry in kindergartners with impairments in social communication. *Language, Speech, and Hearing Services in*

Schools, 34, 154–166.

No clinical question; Wrong population (Kindergarten grade)

Beisler, J. M., & Tsai, L. Y. (1983). A pragmatic approach to increase expressive language skills in young autistic children. *Journal of Autism and Developmental Disorders, 13*, 287–303. doi:10.1007/BF01531567.

Service Delivery Model does not vary; No clinical question

Bernhardt, B., Smith, D., & Smith, R. (1992). Language intervention with a 'family-centered, collaborative, transdisciplinary, integrated' approach: An example. *Child Language Teaching and Therapy, 8*, 265–284. doi:10.1177/026565909200800303.

No data; Case study

Bertrand, J. (2009). Interventions for children with fetal alcohol spectrum disorders (FASDs): Overview of findings for five innovative research projects. *Research in Developmental Disabilities, 30*, 986–1006.

Different treatments; Wrong population (too old); No clinical question

Beveridge, M., & Jerrams, A. (1981). Parental involvement in language development: An evaluation of a school-based parental assistance plan. *British Journal of Educational Psychology, 51*, 259–269.

Different treatments (Distar vs. PAP)

Bibby, P., Eikeseth, S., Martin, N. T., Mudford, O. C., & Reeves, D. (2001). Progress and outcomes for children with autism receiving parent-managed intensive interventions. *Research in Developmental Disabilities, 22*, 425–447.

Erratum published; see Bibby et al. (2002)

Bibby, P., Eikeseth, S., Martin, N. T., Mudford, O. C., & Reeves, D. (2002). Progress and outcomes for children with autism receiving parent-managed intensive interventions. *Research in Developmental Disabilities, 23*, 81–104.

No comparison of service delivery models; Erratum for Bibby et al. (2001)

Biberdorf, J. R., & Pear, J. J. (1977). Two-to-one versus one-to-one student-teacher ratios in the operant verbal training of retarded children. *Journal of Applied Behavior Analysis, 10*, 506.

Not speech language pathology; Unable to get a full text copy of article. Author no longer has a record. Rejected because author said, "No speech-language pathologist was directly involved, although members of my research team and I regularly met with the heads of speech pathology, physiotherapy, occupational therapy, and other departments at the center where the research was conducted" (Correspondence with J. J. Pear on 1/31/08)

Blacher-Dixon, J., Leonard, J., & Turnbull, A. P. (1981). Mainstreaming at the early childhood level: Current and future perspectives. *Mental Retardation, 19*, 235–341.

Not a study

Black, M. M., Dubowitz, H., Hutcheson, J., Berenson-Howard, J., & Starr, R. H., Jr. (1995). A randomized clinical trial of home intervention for children with failure to thrive. *Pediatrics, 95*, 807–814.

Treatment not constant across home and clinic

Bland, L. E., & Prelock, P. A. (1995). Effects of collaboration on language performance. *Journal of Children's Communication Development, 17,* 31–38.

Wrong population (age 6–9)

Blew, P. A., Schwartz, I. S., & Luce, S. C. (1985). Teaching functional community skills to autistic children using nonhandicapped peer tutors. *Journal of Applied Behavior Analysis, 18*, 337–342.

No speech-language outcomes

Blosser, J. L., & Kratcoski, A. (1997). PACs: A framework for determining appropriate service delivery options. *Language, Speech, and Hearing Services in Schools, 28*, 99–107.

Not a study

Bock, S. J., Stoner, J. B., Beck, A. R., Hanley, L., & Prochnow, J. (2005). Increasing functional communication in non-speaking preschool children: Comparison of PECS and VOCA. *Education and Training in Developmental Disabilities, 40*, 264–278.

Different treatments

Bogin, J. (1991). The Sunrise Children's Center: Including children with disabilities in integrated care programs. *Child Today, 20*(2), 13–16.

Not a study

Bono, K. E., Dinehart, L. H. B., Claussen, A. H., Scott, K. G., Mundy, P. C., & Katz, L. F. (2005). Early intervention with children prenatally exposed to cocaine: Expansion with multiple cohorts. *Journal of Early Intervention, 27*, 268–284.

Treatment not held constant; not all children with communication disorders; language intervention not necessarily provided

Bono, K. E., Sheinberg, N., Scott, K. G., & Claussen, A. H. (2007). Early intervention for children prenatally exposed to cocaine. *Infants and Young Children, 20*(1), 26–37.

No data—review

Bono, M. A., Daley, L. T., & Sigman, M. (2004). Relations among joint attention, amount of intervention and language gain in autism. *Journal of Autism and Developmental Disorders, 34*, 495–505.

Different treatments

Bothe, A. K., Davidow, J. H., Bramlett, R. E., & Ingham, R. J. (2006). Stuttering treatment research 1970–2005: I. Systematic review incorporating trial quality assessment of behavioral, cognitive, and related approaches. *American Journal of Speech-Language*

Pathology, 15, 321–341. doi: 10.1044/1058-0360(2006/031)

Not separated by age; no clinical question

Boulware, G.-L., Schwartz, I. S., Sandall, S. R., & McBride, B. J. (2006). Project data for toddlers: An inclusive approach to very young children with autism spectrum disorder. *Topics in Early Childhood Special Education, 26*, 94–105.

No comparison of service delivery models

Bowen, C., & Cupples, L. (1998). A tested phonological therapy in practice. *Child Language Teaching & Therapy, 14*, 29–50. doi:10.1191/026565998666710941.

No comparison of service delivery models

Boyce, G. C., White, K. R., & Kerr, B. (1993). The effectiveness of adding a parent involvement component to an existing center-based program for children with disabilities and their families. *Early Education and Development, 4*, 327–345.

Different treatments

Boyd, R. D., & Corley, M. J. (2001). Outcome survey of early intensive behavioral intervention for young children with autism in a community setting. *Autism: The International Journal of Research and Practice, 5*, 430–441.

No comparison of service delivery models

Boyle, J., McCartney, E., Forbes, J., & O'Hare, A. (2007). A randomised controlled trial and

economic evaluation of direct versus indirect and individual versus group modes of speech and language therapy for children with primary language impairment. *Health Technology Assessment, 11*(25), 1-158.

Wrong population (age 6–11)

Bradley, S. J., Kolers, N., & Cohen, N. (1988). Behavioural and developmental gains made in a therapeutic preschool and an integrated day care program: A pilot study. *Canadian Journal of Psychiatry, 33*, 482–487.

Different treatments

Braga, L. W., Da Paz, A. C., & Ylvisaker, M. (2005). Direct clinician-delivered versus indirect family-supported rehabilitation of children with traumatic brain injury: A randomized controlled trial. *Brain Injury, 19*(10), 819–831.

Wrong population (too old)

Breit-Smith, A., Justice, L. M., McGinty, A. S., & Kaderavek, J. (2009). How often and how much? Intensity of print referencing intervention. *Topics in Language Disorders, 29*(4), 360–369.

No comparison of service delivery models; Article of interest

Bricker, D., Bruder, M. B., & Bailey, E. (1982). Developmental integration of preschool children. *Analysis & Intervention in Developmental Disabilities, 2*, 207–222.

No comparison of service delivery models

Briesch, A. M., Chafouleas, S. M., Lebel, T. J., & Blom-Hoffman, J. A. (2008). Impact of videotaped instruction in dialogic reading strategies: An investigation of caregiver implementation integrity. *Psychology in the Schools, 45,* 978–993. doi:10.1002/pits.20346

No clinical question

Brightman, R. P., Baker, B. L., Clark, D. B., & Ambrose, S. A. (1982). Effectiveness of alternative parent training formats. *Journal of Behavior Therapy and Experimental Psychiatry, 13,* 113–117.

No speech-language outcomes

Broadhead, G. D. (1979). Integrating special children in Scotland: A P.L. 94-142 is needed. *Journal of Special Education, 13,* 91–98.

No clinical question

Broen, P. A., & Westman, M. J. (1990). Project parent: A preschool speech program implemented through parents. *Journal of Speech and Hearing Disorders, 55,* 495–502.

No comparison of service delivery models or dosage

Brookman-Frazee, L. (2004). Using parent/clinician partnerships in parent education programs for children with autism. *Journal of Positive Behavior Interventions, 6,* 195–213.

No comparison of service delivery models; No clinical question

Brookman-Frazee, L., Stahmer, A., Baker-Ericzen, M. J., & Tsai, K. (2006). Parenting interventions for children with autism spectrum and disruptive behavior disorders: Opportunities for cross-fertilization. *Clinical Child and Family Psychology Review, 9*(3-4), 181–200. doi:10.1007/s10567-006-0010-4.

No original data

Brorson, K. (2005). The culture of a home visit in early intervention. *Journal of Early Childhood Research, 3,* 51–76. doi:10.1177/1476718x05051346.

No data – qualitative

Brotman, L. M., Gouley, K. K., Chesir-Teran, D., Dennis, T., Klein, R. G., & Shrout, P. (2005). Prevention for preschoolers at high risk for conduct problems: Immediate outcomes on parenting practices and child social competence. *Journal of Clinical Child & Adolescent Psychology, 34,* 724–734.

No clinical question; No speech-language outcomes

Brown, W. H., Horn, E. M., Heiser, J. G., & Odom, S. L. (1996). Project Blend: An inclusive model of early intervention services. *Journal of Early Intervention, 20,* 364–375. doi:10.1177/105381519602000409 *No comparison of service delivery models*

Bruder, M. B. (1993). The provision of early intervention and early childhood special education within community early childhood programs: Characteristics of effective service

delivery. *Topics in Early Childhood Special Education, 13*, 19–37. doi:10.1177/027112149301300105

No data to answer clinical question

Bruder, M. B., & Staff, I. (1998). A comparison of the effects of type of classroom and service characteristics on toddlers with disabilities. *Topics in Early Childhood Special Education, 18*, 26–37.

Different treatments

Bruder, M. B., Staff, I., & McMurrer-Kaminer, E. (1997). Toddlers receiving early intervention in childcare centers: A description of a service delivery system. *Topics in Early Childhood Special Education, 17*, 185–208.

No comparison of service delivery models

Bryen, D. N., & Joyce, D. G. (1985). Language intervention with the severely handicapped: A decade of research. *Journal of Special Education, 19*, 7–39.

No comparison of service delivery models

Burkett, C. W. (1982). Effects of frequency of home visits on achievement of preschool students in a home-based early childhood education program. *Journal of Educational Research, 76*, 41–44.

Mixed population; "at risk" criteria to enter study, not speech-language disorders

Buschmann, A., Jooss, B., Rupp, A., Feldhusen, F., Pietz, J., & Philippi, H. (2009). Parent based language intervention for 2-year-old children with specific expressive language delay: A randomised controlled trial. *Archives of Disease in Childhood, 94*, 110–116doi:10.1136/adc.2008.141572.

Treatment vs. no treatment; No comparison of service delivery models

Buysse, V., & Bailey, D. B., Jr. (1993). Behavioral and developmental outcomes in young children with disabilities in integrated and segregated settings: A review of comparative studies. *Journal of Special Education 26*, 434–461. doi:10.1177/002246699302600407

No original data

Caldera, D., Burrell, L., Rodriguez, K., Crowne, S. S., Rohde, C., & Duggan, A. (2007). Impact of a statewide home visiting program on parenting and on child health and development. *Child Abuse & Neglect, 31*, 829–852.

No clinical question

Camarata, S. (1993). The application of naturalistic conversation training to speech production in children with speech disabilities. *Journal of Applied Behavior Analysis, 26*, 173–182.

No comparison of service delivery models or dosage; No clinical question

Camarata, S. M., Nelson, K. E., & Camarata, M. N. (1994). Comparison of conversational-recasting and imitative procedures for training grammatical structures in children with specific language impairment. *Journal of Speech and Hearing Research, 37*, 1414–1423.

Different treatments

Campbell, F. A., & Ramey, C. T. (1994). Effects of early intervention on intellectual and academic achievement: A follow-up study of children from low-income families. *Child Development, 65*(2 Spec No), 684–698.

Not speech-language outcomes; "at risk" criteria to enter study, not speech-language disorders

Cappleman, M. W., Thompson, R. J., Jr., DeRemer-Sullivan, P. A., King, A. A., & Sturm, J. M. (1982). Effectiveness of a home based early intervention program with infants of adolescent mothers. *Child Psychiatry and Human Development, 13*, 55–65.

Treatment vs. no treatment

Carl, R. L., & Bustow, S. M. (1978). Institutional services for the mentally retarded: Residential needs in the service delivery system. *Journal of the American Health Care Association, 4*(5), 7–8, 10–11.

Not a study; no indication of comparison data

Carney, N., du Coudray, H., Davis-O'Reilly, C., Zimmer-Gembeck, M., Clay Mann, M., Pyle Krages, K., & Helfand, M. (1999). *Rehabilitation for traumatic brain injury in children and adolescents* (Evidence Report No. 2S). Rockville, MD: Agency for Health Care Policy and Research.

No comparison of service delivery models

Carpenter, W. (1979). Why mainstreaming will succeed while some other special education will fail. *Education, 99*, 368.

Not a study

Carson, C. P., Klee, T., Carson, D. K., & Hime, L. K. (2003). Phonological profiles of 2-year-olds with delayed language development: Predicting clinical outcomes at age 3. *American Journal of Speech-Language Pathology, 12*, 28–39.

No clinical question

Carter, J. L. (1975). Intelligence and reading achievement of EMR children in three educational settings. *Mental Retardation, 13*(5), 26–27.

Wrong population (too old)

Case-Smith, J., & Holland, T. (2009). Making decisions about service delivery in early childhood programs. *Language, Speech, and Hearing Services in Schools, 40*, 416–423. doi: 10.1044/0161-1461(2009/08-0023).

Not a study

Cassidy, A., McConkey, R., Truesdale-Kennedy, M., Crawford, H., McGreevy, E., & Reavey, M. (2008). Preschoolers with autism spectrum disorders: Evaluating the impact of a home-based intervention to promote their communication. *Early Child Development and Care.*

No comparison of service delivery models

Casto, G., & White, K. R. (1993). Longitudinal studies of alternative types of early intervention: Rationale and design. *Early Education and Development, 4*, 224–237.

No original data; article of interest

Caughy, M. O., DiPietro, J. A., & Strobino, D. M. (1994). Day-care participation as a protective factor in the cognitive development of low-income children. *Child Development, 65*(2 Spec No), 457–471.

No clinical question

Chaabane, D. B. B., Alber-Morgan, S. R., & DeBar, R. M. (2009). The effects of parent-implemented pecs training on improvisation of mands by children with autism. *Journal of Applied Behavior Analysis, 42*, 671–677.

No comparison of service delivery models

Chandler, S., Christie, P., Newson, E., & Prevezer, W. (2002). Developing a diagnostic and intervention package for 2 to 3-year-olds with autism: Outcomes of the frameworks for communication approach. *Autism, 6*, 47–69. doi: 10.1177/1362361302006001005.

No comparison of service delivery models or dosage

Charlop, C. M. H., & Carpenter, M. H. (2000). Modified incidental teaching sessions: A procedure for parents to increase spontaneous speech in their children with autism.

Journal of Positive Behavior Interventions, 2, 98–112.

Wrong population (school-age); No clinical question

Childs, R. E. (1979). A drastic change in curriculum for the educable mentally retarded child. *Mental Retardation, 17*(6), 299–301.

No comparison of service delivery models; No clinical question

Chorpita, B. F., Yim, L. M., Donkervoet, J. C., Arensdorf, A., Amundsen, M. J., McGee, C., … Morelli, P. (2002). Toward large-scale implementation of empirically supported treatments for children: A review and observations by the Hawaii Empirical Basis to Services Task Force. *Clinical Psychology: Science and Practice, 9*, 165–190.

No original data; No comparison of service delivery models; review

Cirrin, F. M., & Gillam, R. B. (2008). Language intervention practices for school-age children with spoken language disorders: A systematic review. *Language, Speech, and Hearing Services in Schools, 39*, S110–S137. doi:10.1044/0161-1461(2008/012).

Wrong population (school-age); No clinical question

Cirrin, F. M., & Gillam, R. (2006). Review of the evidence-based practices for language intervention of school-age children: Implications for treatment, future research, and personnel preparation in speech-language pathology. (COPSSE Document Number OP-2E). Gainesville, FL: University of Florida, Center on Personnel Studies in Special Education.

Wrong population (school-age); No original data

Claussen, A. H., Scott, K. G., Mundy, P. C., & Katz, L. F. (2004). Effects of three levels of early intervention services on children prenatally exposed to cocaine. *Journal of Early Intervention 26,* 204–220. doi:10.1177/105381510402600304.

Not diagnosed with speech-language disorder

Cleary, P., & McFadden, S. (2001). Helping children with communication difficulties in the classroom. *International Journal of Language & Communication Disorders, 36,* 31–34.

Wrong population (school-age); No clinical question; Not experimental design or quasi-experimental design

Clements, J., Evans, C., Jones, C., Osborne, K., & Upton, G. (1982). Evaluation of a home-based language training programme with severely mentally handicapped children. *Behavior Research and Therapy, 20,* 243–249.

Mixed population; Treatment vs. no treatment

Cleven, J. G. (2005). *Training and mentoring childcare providers in story sharing: Effects on vocabulary and story retelling for four-year olds, and story sharing behaviors of childcare providers.* Retrieved from http://gradworks.umi.com/32/47/3247020.html.

No comparison of service delivery models

Cohen, H., Amerine-Dickens, M., & Smith, T. (2006). Early intensive behavioral treatment:

Replication of the UCLA model in a community setting. *Journal of Developmental and Behavioral Pediatrics, 27*(Suppl. 2), S145–S155.

Different treatments

Cohen, N. J., Bradley, S., & Kolerse, N. (1986). Building competence in delayed and disturbed preschoolers: Outcome evaluation of an intensive day treatment program. *Canadian Journal of Public Health, 77 Supplement 1*, 65–71.

No description of treatment for comparison group

Cohen, W., Hodson, A., O'Hare, A., Boyle, J., Durrani, T., McCartney, E., … Naftalin, L. (2005). Effects of computer-based intervention through acoustically modified speech (Fast ForWord) in severe mixed receptive-expressive language impairment: Outcomes from a randomized controlled trial. *Journal of Speech, Language, and Hearing Research, 48*, 715–729.

Wrong population (age 6–11)

Cole, K. N., & Dale, P. S. (1986). Direct language instruction and interactive language instruction with language delayed preschool children: A comparison study. *Journal of Speech and Hearing Research, 29*, 206–217.

Different treatments

Cole, K. N., Dale, P. S., & Mills, P. E. (1991). Individual differences in language delayed children's responses to direct and interactive preschool instruction. *Topics in Early*

Childhood Special Education, 11, 99–124. doi:10.1177/027112149101100110.

Different treatments

Cole, K. N., Harris, S. R., Eland, S. F., & Mills, P. E. (1989). Comparison of two service delivery models: In-class and out-of-class therapy approaches. *Pediatric Physical Therapy, 1*(2), 49–54.

Not children with communication disorders

Cole, K. N., Mills, P. E., Dale, P. S., & Jenkins, J. R. (1991). Effect of preschool integration for children with disabilities. *Exceptional Children, 58*, 36–45.

Treatment not held constant

Connecticut Birth to Three System. (1998). *Service guideline 3: Children referred for speech delays: Evaluation, assessment and intervention guidance for service providers and families of young children whose delays in communication are a primary concern*. Retrieved from http://www.birth23.org.

No clinical question; No data; Not a study

Conroy, M. A., Dunlap, G., Clarke, S., & Alter, P. J. (2005). A descriptive analysis of positive behavioral intervention research with young children with challenging behavior. *Topics in Early Childhood Special Education, 25*, 157–166.

No clinical question

Cooke, T. P., Apolloni, T., & Cooke, S. A. (1977). Normal preschool children as behavioral models for retarded peers. *Exceptional Children, 43*, 531–532.

No comparison of service delivery models

Cooke, T. P., Ruskus, J. A., Apolloni, T., & Peck, C. A. (1981). Handicapped preschool children in the mainstream: Background, outcomes, and clinical suggestions. *Topics in Early Childhood Special Education, 1*, 73–83.

Unclear if treatment *held constant*

Cooper, J., Moodley, M., & Reynell, J. (1979). The Developmental Language Programme. Results from a five year study. *British Journal of Disorders of Communication, 14*, 57–69.

Unclear if *treatment held constant*

Coppola, V. A., & Yairi, E. (1982). Rhythmic speech training with preschool stuttering children: An experimental study. *Journal of Fluency Disorders, 7*, 447–457.

No comparison of service delivery models

Corcoran, J., & Dattalo, P. (2006). Parent involvement in treatment for ADHD: A meta-analysis of the published studies. *Research on Social Work Practice 16*, 561–570. doi:10.1177/1049731506289127.

Not speech-language outcomes

Coren, E., & Barlow, J. (2001). Individual and group-based parenting programmes for improving psychosocial outcomes for teenage parents and their children (Art No. CD002964). *Cochrane Database of Systematic Reviews*.

No clinical question

Coren, E., Hutchfield, J., & Gustafsson, C. (2009). Parent training support for intellectually disabled parents (Art No. CD007987). *Cochrane Database of Systematic Reviews*.

No clinical question

Cosbey, J. E., & Johnston, S. (2006). Using a single-switch voice output communication aid to increase social access for children with severe disabilities in inclusive classrooms. *Research and Practice for Persons with Severe Disabilities, 31*, 144–156.

No comparison of service delivery models; No clinical question

Costello, J., & Schoen, J. (1978). The effectiveness of paraprofessionals and a speech clinician as agents of articulation intervention using programmed instruction. *Language, Speech, and Hearing Services in Schools, 9*, 118–128.

Wrong population

Coulter, L., & Gallagher, C. (2001). Evaluation of the Hanen Early Childhood Educators Programme. *International Journal of Language & Communication Disorders, 36*, 264–269.

No comparison of service delivery models

Craig-Unkefer, L. A., & Kaiser, A. P. (2002). Improving the social communication skills of at-risk preschool children in a play context. *Topics in Early Childhood Special Education, 22*, 3–14.

No comparison of service delivery models or dosage; No clinical question

Crockett, J. L., Fleming, R. K., Doepke, K. J., & Stevens, J. S. (2007). Parent training: Acquisition and generalization of discrete trials teaching skills with parents of children with autism. *Research in Developmental Disabilities, 28*, 23–36.

No comparison of service delivery models

Cronan, T. A., Cruz, S. G., Arriaga, R. I., & Sarkin, A. J. (1996). The effects of a community-based literacy program on young children's language and conceptual development. *American Journal of Community Psychology, 24*, 251–272.

Not children with communication disorders

Crosbie, S., Holm, A., & Dodd, B. (2005). Intervention for children with severe speech disorder: A comparison of two approaches. *International Journal of Language & Communication Disorders, 40*, 467–491.

Different treatments

Crowe, L. K., Norris, J. A., & Hoffman, P. R. (2004). Training caregivers to facilitate communicative participation of preschool children with language impairment during

storybook reading. *Journal of Communication Disorders, 37*, 177–196. doi:10.1016/j.jcomdis.2003.09.001.

No comparison of service delivery models

Crozier, S., & Tincani, M. (2007). Effects of social stories on prosocial behavior of preschool children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 37*, 1803–1814. doi:10.1007/s10803-006-0315-7.

No comparison of service delivery models

Cunningham, C. E., Bremner, R., & Boyle, M. (1995). Large group community-based parenting programs for families of preschoolers at risk for disruptive behaviour disorders: Utilization, cost effectiveness, and outcome. *Journal of Child Psychology and Psychiatry, 36*, 1141–1159.

Not speech-language outcomes

Curlee, R. F., & Yairi, E. (1997). Early intervention with early childhood stuttering: A critical examination of the data. *American Journal of Speech-Language Pathology, 6*(2), 8–18.

Not a study

Dagenais, P. A. (1992). Speech training with glossometry and palatometry for profoundly hearing-impaired children. *Volta Review, 94*, 261–282.

Different treatments

Daly, E. J., III, Martens, B. K., Barnett, D., Witt, J. C., & Olson, S. C. (2007). Varying intervention delivery in response to intervention: Confronting and resolving challenges with measurement, instruction, and intensity. *School Psychology Review, 36,* 562–581.

No comparison of service delivery models

Davies, P. L., & Gavin, W. J. (1994). Comparison of individual and group/consultation treatment methods for preschool children with developmental delays. *American Journal of Occupational Therapy, 48,* 155–161.

Not speech-language outcomes

Davis Burstein, N. (1986). The effects of classroom organization on mainstreamed preschool children. *Exceptional Children, 52*, 424–425.

Observation under different conditions, not treatment; No speech-language outcomes

Dawson, G., Rogers, S., Munson, J., Smith, M., Winter, J., Greenson, J., … Varley, J. (2009). Randomized, controlled trial of an intervention for toddlers with autism: The Early Start Denver Model. *Pediatrics*. Advance online publication. doi: 10.1542/peds.2009-0958.

No comparison of service delivery models; Different treatments

Delaney, E. M., & Kaiser, A. P. (2001). The effects of teaching parents blended communication and behavior support strategies. *Behavioral Disorders, 26,* 93–116.

No comparison of service delivery models or dosage; No clinical question

Delgado, J. A. P., & Oblak, M. (2007). The effects of daily intensive tact instruction on the emission of pure mands and tacts in non-instructional settings by three preschool children with developmental delays. *Journal of Early & Intensive Behavior Intervention, 4,* 392–411.

No clinical question

Delprato, D. J. (2001). Comparisons of discrete-trial and normalized behavioral language intervention for young children with autism. *Journal of Autism and Developmental Disorders, 31,* 315–325.

Not a study—review

Denne, M., Langdown, N., Pring, T., & Roy, P. (2005). Treating children with expressive phonological disorders: Does phonological awareness therapy work in the clinic? *International Journal of Language & Communication Disorders, 40,* 493–504.

Treatment vs. no treatment

Dickinson, D. K., & Tabors, P. O. (1991). Early literacy: Linkages between home, school and literacy achievement at age five. *Journal of Research in Childhood Education, 6,* 30–46.

No comparison of service delivery models

Dickson, K., Marshall, M., Boyle, J., McCartney, E., O'Hare, A., & Forbes, J. (2009). Cost analysis of direct versus indirect and individual versus group modes of manual-based speech-and-language therapy for primary school-age children with primary language

impairment. *International Journal of Language & Communication Disorders, 44*, 369–381.

Wrong population (too old); Article of interest

Diggle T., McConachie, H. R., & Randle, V. R. L. (2003). Parent-mediated early intervention for young children with autism spectrum disorder (Art No. CD003496). *Cochrane Database of Systematic Reviews*. doi:10.1002/14651858. CD003496.

Not specifically comparing two service delivery models

Dinehart, L. H. B., Dice, J. L., Dobbins, D. R., Claussen, A. H., & Bono, K. E. (2006). Proximal variables in families of children prenatally exposed to cocaine and enrolled in a center- or home-based intervention. *Journal of Early Intervention, 29,* 32–47.

No clinical question

Dinehart, L. H. B., Yale Kaiser, M., & Hughes, C. R. (2009). Language delay and the effect of milieu teaching on children born cocaine exposed: A pilot study. *Journal of Developmental and Physical Disabilities, 21*, 9–22.

No comparison of service delivery models

Dobson, S., & Henderson, L. (1998). A comparison of training approaches for support assistants using the Hanen philosophy. *International Journal of Language & Communication Disorders, 33,* 515–519.

No comparison of service delivery models

Dodd, B., & Bradford, A. (2000). A comparison of three therapy methods for children with different types of developmental phonological disorder. *International Journal of Language & Communication Disorders, 35*, 189–209.

Different treatments

Dodd, B., McCormack, P., & Woodyatt, G. (1994). Evaluation of an intervention program: Relation between children's phonology and parents' communicative behavior. *American Journal on Mental Retardation, 98*, 632–645.

No comparison of service delivery models or dosage; No clinical question

Doughty, C. (2004). What is the evidence for the effectiveness of behavioural and skill-based early intervention in young children with autism spectrum disorder (ASD)? *New Zealand Health Technology Assessements Tech Brief Series, 3*(1). Retrieved from http://nzhta.chmeds.ac.nz/publications/early_autism.pdf.

No comparison of service delivery models

Dretzke, J., Frew, E., Davenport, C., Barlow, J., Stewart-Brown, S., Sandercock, J., … Taylor, R. (2005). The effectiveness and cost-effectiveness of parent training/education programmes for the treatment of conduct disorder, including oppositional defiant disorder, in children. *Health Technology Assessment, 9*(50), iii, ix–x, 1–233.

Not children with communication disorders

Drew, A., Baird, G., Baron-Cohen, S., Cox, A., Slonims, V., Wheelwright, S., … Charman, T. (2002). A pilot randomised control trial of a parent training intervention for pre-school children with autism: Preliminary findings and methodological challenges. *European Child & Adolescent Psychiatry*, *11*(6), 266–272.

Different treatments (unclear)

Dunst, C. J., Hamby, D. W., & Brookfield, J. (2007). Modeling the effects of early childhood intervention variables on parent and family well-being. *Journal of Applied Quantitative Methods*, *2*, 268–288.

No speech-language outcomes

Dunst, C. J., & Rheingrover, R. M. (1981). An analysis of the efficacy of infant intervention programs with organically handicapped children. *Evaluation and Program Planning*, *4*(3-4), 287–323.

No comparison of service delivery models; No clinical question

Dunst, C. J., Snyder, S. W., & Mankinen, M. (1989). Efficacy of early intervention. *Handbook of Special Education*, *3*, 259–293.

Not a study; Not available through Longwood or HSL

Dunst, C. J., Trivette, C. M., Humphries, T., Raab, M., & Roper, N. (2001). Contrasting approaches to natural learning environment interventions. *Infants and Young Children*, *14*(2), 48–63.

No clinical question; No speech-language outcomes; Just information on programs

Eayrs, C. B., & Jones, R. S. (1992). Methodological issues and future directions in the evaluation of early intervention programmes. *Child: Care, Health, and Development, 18*, 15–28.

No clinical question

Eikeseth, S. (2009). Outcome of comprehensive psycho-educational interventions for young children with autism. *Research in Developmental Disabilities, 30*, 158–178.

No speech-language outcomes

Eikeseth, S., Hayward, D., Gale, C., Gitlesen, J. P., & Eldevik, S. (2009). Intensity of supervision and outcome for preschool aged children receiving early and intensive behavioral interventions: A preliminary study. *Research in Autism Spectrum Disorders, 3*, 67–73. doi:10.1016/j.rasd.2008.04.003.

No speech-language outcomes

Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2002). Intensive behavioral treatment at school for 4- to 7-year-old children with autism. A 1-year comparison controlled study. *Behavior Modification, 26*, 49–68.

Different treatments

Eikeseth, S., Smith, T., Jahr, E., & Eldevik, S. (2007). Outcome for children with autism who began intensive behavioral treatment between ages 4 and 7: A comparison controlled

study. *Behavior Modification, 31*, 264–278.

Different treatments

Eilers, R. E., Oller, D. K., & Vergara, K. (1989). Speech and language progress of hearing-impaired children in a systematic training program using tactual vocoders. *Volta Review, 91*, 127–138.

No comparison of service delivery models

Elbert, M., Dinnsen, D. A., Swartzlander, P., & Chin, S. B. (1990). Generalization to conversational speech. *Journal of Speech and Hearing Disorders, 55*, 694–699.

No comparison of service delivery models; No clinical question

Elder, J. H. (1995). In-home communication intervention training for parents of multiply handicapped children ... including commentary by Neff Ej. *Scholarly Inquiry for Nursing Practice, 9*, 71–95.

No comparison of service delivery models

Elder, J. H., Valcante, G., Groce, S., Yarandi, H., & Carlton, M. S. (2002). Social interactions of children with autism in father-child and mother-child play sessions. *Pediatric Nursing, 28*, 573–578, 581.

No treatments provided

Eldevik, S., Eikeseth, S., Jahr, E., & Smith, T. (2006). Effects of low-intensity behavioral

treatment for children with autism and mental retardation. *Journal of Autism and Developmental Disorders, 36*, 211–224.

Different treatments, not different service delivery models

Eldevik, S., Hastings, R. P., Hughes, J. C., Jahr, E., Eikeseth, S., & Cross, S. (2009). Meta-analysis of early intensive behavioral intervention for children with autism. *Journal of Clinical Child & Adolescent Psychology, 38*, 439–450.

No speech-language outcomes

Elliot, J., Prior, M., Merrigan, C., & Ballinger, K. (2002). Evaluation of a community intervention programme for preschool behaviour problems. *Journal of Paediatrics and Child Health 38*, 41–50.

Wrong population (too old)

Ellis, J. M., & Logan, S. (2001). Home based, parent mediated, early educational intervention for children with, or biologically at risk of, developmental disability (protocol) (Art No. CD002965). *Cochrane Database of Systematic Reviews*. doi:10.1002/14651858.CD002965.

No data; Not a study—protocol

Ellis, L., Schlaudecker, C., & Regimbal, C. (1995). Effectiveness of a collaborative consultation approach to basic concept instruction with kindergarten children. *Language, Speech, and Hearing Services in Schools, 26*, 69–74.

Wrong population (Kindergarten)

Enderby, P. M., & John, A. (1999). Therapy outcome measures in speech and language therapy: Comparing performance between different providers. *International Journal of Language & Communication Disorders, 34*, 417–429.

Wrong population (adults)

Erhardt, D., & Baker, B. L. (1990). The effects of behavioral parent training on families with young hyperactive children. *Journal of Behavior Therapy and Experimental Psychiatry, 21*, 121–132.

No speech-language outcomes; No clinical question

Escobar, C. M., Barnett, W. S., & Goetze, L. D. (1994). Cost analysis in early intervention. *Journal of Early Intervention 18*, 48–63. doi:10.1177/105381519401800105.

Cost analysis; No clinical question

Escobar, C. M., Barnett, W. S., & Keith, J. E. (1988). A contingent valuation approach to measuring the benefits of preschool education. *Educational Evaluation & Policy Analysis, 10*, 13–22.

No comparison of service delivery models

Fair, L., & Louw, B. (1999). Early communication intervention within a community-based intervention model in South Africa. *The South African Journal of Communication*

Disorders, 46, 13–23.

No comparison of service delivery models

Farber, J., Denenberg, M. E., Klyman, S., & Lachman, P. (1992). Language resource room level of service: An urban school district approach to integrative treatment. *Language, Speech, and Hearing Services in Schools, 23,* 293–299.

Wrong population (school-age)

Farber, J. G., & Klein, E. R. (1999). Classroom-based assessment of a collaborative intervention program with kindergarten and first-grade students. *Language, Speech, and Hearing Services in Schools, 30,* 83–91.

Wrong population (kindergarten–1st grade)

Farrell, P., Trigonaki, N., & Webster, D. (2005). An exploratory evaluation of two early intervention programmes for young children with autism. *Educational & Child Psychology, 22*(4), 29–40.

Different treatments

Favell, J. E., Favell, J. E., & McGimsey, J. F. (1978). Relative effectiveness and efficiency of group vs. individual training of severely retarded persons. *American Journal of Mental Deficiency, 83,* 104–109.

Wrong population

Feldman, M. A., Sparks, B., & Case, L. (1993). Effectiveness of home-based early intervention on the language development of children of mothers with mental retardation. *Research in Developmental Disabilities, 14*, 387–408.

No comparison of service delivery models

Fenrick, N. J., Pearson, M. E., & Pepelnjak, J. M. (1984). The play, attending, and language of young handicapped children in integrated and segregated settings. *Journal of Early Intervention, 8*, 57–67. doi:10.1177/105381518400800107.

Different treatments

Ferguson, M. L. (1992). The transition to collaborative teaching. *Language, Speech, and Hearing Services in Schools, 23*, 371–372.

No comparison of service delivery models; One model with two parts

Fewell, R. R., & Oelwein, P. L. (1990). The relationship between time in integrated environments and developmental gains in young children with special needs. *Topics in Early Childhood Special Education, 10*, 104–116.

Mixed age population (too old)

Fey, M. E., Cleave, P. L., & Long, S. H. (1997). Two models of grammar facilitation in children with language impairments: Phase 2. *Journal of Speech and Hearing Research, 40*, 5–19.

Treatment not held constant

Fey, M. E., Cleave, P. L., Long, S. H., & Hughes, D. L. (1993). Two approaches to the facilitation of grammar in children with language impairment: An experimental evaluation. *Journal of Speech and Hearing Research, 36*, 141–157.

Fey et al. (1997) states that this study should not be used to compare service delivery or treatment schedules

Fey, M. E., Cleave, P. L., Ravida, A. I., Long, S. H., Dejmal, A. E., & Easton, D. L. (1994). Effect of grammar facilitation on the phonological performance of children with speech and language impairments. *Journal of Speech and Hearing Research, 37*, 594–607.

Treatment not held constant

Fey, M. E., Warren, S. F., Brady, N., Finestack, L. H., Bredin-Oja, S. L., Fairchild, M., …. Yoder, P. J. (2006). Early effects of responsivity education/prelinguistic milieu teaching for children with developmental delays and their parents. *Journal of Speech, Language, and Hearing Research, 49*, 526–547.

No comparison of service delivery models; No clinical question

Field, T., Roseman, S., de Stefano, L., & Koewler, J. H. (1981). Play behaviors of handicapped preschool children in the presence and absence of nonhandicapped peers. *Journal of Applied Developmental Psychology, 2*, 49–58.

Play outcomes; condition study

File, N., & Kontos, S. (1992). Indirect service delivery through consultation: Review and

implications for early intervention. *Journal of Early Intervention, 16,* 221–233. doi:10.1177/105381519201600303.

Not a study

Fink, W. T., & Sandall, S. R. (1980). A comparison of one-to-one and small group instructional strategies with developmentally disabled preschoolers. *Mental Retardation, 18*(1), 34–35.

No individual data presented; Insufficient data

Fitzgerald, H. E., Brajovic, C., Djurdjic, S., & Djurdjevic, M. (1979). Development of articulatory competence in mentally retarded children. *Perceptual and Motor Skills, 48,* 1175–1182.

No comparison of service delivery models

Fitzgerald, M. T., & Karnes, D. E. (1987). A parent-implemented language model for at-risk and developmentally delayed preschool children. *Topics in Language Disorders, 7*(3), 31–46.

No comparison of service delivery models

Forehand, R., & Atkeson, B. M. (1977). Generality of treatment effects with parents as therapists: A review of assessment and implementation procedures. *Behavior Therapy, 8,* 575–593.

Not a study

Forness, S. R., & Kavale, K. A. (1985). Effects of class size on attention, communication, and

disruption of mildly mentally retarded children. *American Educational Research Journal, 22*, 403–412.

Wrong population (too old)

Forness, S. R., & Kavale, K. A. (1997). Mega-analysis of meta-analyses. *Teaching Exceptional Children, 29*(6), 4–9.

Wrong population (too old)

Franken, M.-C. J., Kielstra-Van der Schalk, C. J., & Boelens, H. (2005). Experimental treatment of early stuttering: A preliminary study. *Journal of Fluency Disorders, 30,* 189–199.

Comparison of two treatments; Not service delivery models

Frassinelli, L., Superior, K., & Meyers, J. (1983). A consultation model for speech and language intervention. *Asha, 25*(11), 25–30.

Not a study

Freire, S., & César, M. (2003). Inclusive ideals/inclusive practices: How far is a dream from reality? Five comparative case studies. *European Journal of Special Needs Education, 18*, 341–354.

Wrong population (too old)

Fuentes-Biggi, J., Ferrari-Arroyo, M. J., Boada-Munoz, L., Tourino-Aguilera, E., Artigas-Pallares, J., Belinchon-Carmona, M., ... Posada-De la Paz, M. (2006). Good practice

guidelines for the treatment of autistic spectrum disorders. *Revista De Neurologia, 43*, 425–438.

No original data—review

Gabriels, R. L., Hill, D. E., Pierce, R. A., Rogers, S. J., & Wehner, B. (2001). Predictors of treatment outcome in young children with autism: A retrospective study. *Autism: The International Journal of Research and Practice, 5*, 407–429.

Different treatments

Galbraith, G. (1978). An interactive computer system for teaching language skills to deaf children. *American Annals of the Deaf, 123*, 706–711.

No comparison of service delivery models

Gallagher, A. L., & Chiat, S. (2009). Evaluation of speech and language therapy interventions for pre-school children with specific language impairment: A comparison of outcomes following specialist intensive, nursery-based and no intervention. *International Journal of Language & Communication Disorders, 44*, 616–638.

Authors state different treatments provided

Garcia, G. E., Watkins, R., Eatman, J., Bennett, T., Zhang, C., Tarnow, L. H., … Halle, J. (2001). *Cross-cultural considerations in early childhood special education*. (Technical Report #14). Retrieved from Early Childhood Research Institute on Culturally and Linguistically Appropriate Services website: http://clas.uiuc.edu/techreport/tech14.html

No clinical question; Not a study

Gardner, H. (2006). Training others in the art of therapy for speech sound disorders: An interactional approach. *Child Language Teaching and Therapy, 22*, 27.

No comparison of service delivery models

Gersten, R. (1985). Direct instruction with special education students: A review of evaluation research. *Journal of Special Education, 19*(1), 41-58.

Not a study; Wrong population (too old)

Gibbard, D., Coglan, L., & MacDonald, J. (2004). Cost-effectiveness analysis of current practice and parent intervention for children under 3 years presenting with expressive language delay. *International Journal of Language & Communication Disorders, 39*, 229–244.

Children in the general care group do not receive direct service; General care treatment not well described

Gillett, J. N., & LeBlanc, L. A. (2007). Parent-implemented natural language paradigm to increase language and play in children with autism. *Research in Autism Spectrum Disorders, 1*, 247–255.

No comparison of service delivery models

Gilliam, W. S., & Zigler, E. F. (2000). A critical meta-analysis of all evaluations of state-funded preschool from 1977 to 1998: Implications for policy, service delivery and program

evaluation. *Early Childhood Research Quarterly, 15*, 441–473.

Not children with communication disorders; No comparison of service delivery models

Gillis, J. M., & Butler, R. C. (2007). Social skills interventions for preschoolers with autism spectrum disorder: A description of single-subject design studies. *Journal of Early & Intensive Behavior Intervention, 4*, 532–547.

No original data

Gillon, G. T. (2005). Facilitating phoneme awareness development in 3-and 4-year-old children with speech impairment. *Language, Speech, and Hearing Services in Schools, 36*, 308–324.

No comparison of service delivery models or dosage; No clinical question

Girolametto, L. E. (1988). Improving the social-conversational skills of developmentally delayed children: An intervention study. *Journal of Speech and Hearing Disorders, 53*, 156–167.

No comparison of service delivery models or dosage

Girolametto, L. (1995). The effects of focused stimulation for promoting vocabulary in young children with delays: A pilot study. *Journal of Children's Communication Development, 17*(2), 39–49.

No comparison of service delivery models or dosage

Girolametto, L., Hoaken, L., Weitzman, E., & van Lieshout, R. (2000). Patterns of adult-child

linguistic interaction in integrated day care groups. *Language, Speech, and Hearing Services in Schools, 31,* 155–168.

No comparison of service delivery models or dosage; No clinical question

Girolametto, L., Pearce, P. S., & Weitzman, E. (1996). Interactive focused stimulation for toddlers with expressive vocabulary delays. *Journal of Speech and Hearing Research, 39,* 1274–1283.

No comparison of service delivery models or dosage

Girolametto, L., Pearce, P. S., & Weitzman, E. (1997). Effects of lexical intervention on the phonology of late talkers. *Journal of Speech, Language, and Hearing Research, 40,* 338–348.

No comparison of service delivery models or dosage

Girolametto, L., & Weitzman, E. (2007). Promoting peer interaction skills: Professional development for early childhood educators and preschool teachers. *Topics in Language Disorders, 27*(2), 93-110.

No comparison of service delivery models or dosage

Girolametto, L., Weitzman, E., & Clements-Baartman, J. (1998). Vocabulary intervention for children with Down syndrome: Parent training using focused stimulation. *Infant Toddler Intervention: The Transdisciplinary Journal of Applied Behavior Analysis, 8,* 109–125.

No comparison of service delivery models or dosage

Girolametto, L., Weitzman, E., & Greenberg, J. (2004). The effects of verbal support strategies on small-group peer interactions. *Language, Speech, and Hearing Services in Schools, 35*, 254–268.

No comparison of service delivery models

Girolametto, L., Wiigs, M., Smyth, R., Weitzman, E., & Pearce, P. S. (2001). Children with a history of expressive vocabulary delay: Outcomes at 5 years of age. *American Journal of Speech-Language Pathology, 10,* 358–369.

No comparison of service delivery models

Gitler, D., & Gordon, R. (1979). Observing and recording young handicapped children's behavior: A comparison among observational methodologies. *Exceptional Children, 46,* 134–135.

No clinical question

Glogowska, M., Campbell, R., Peters, T. J., Roulstone, S., & Enderby, P. (2002). A multimethod approach to the evaluation of community preschool speech and language therapy provision. *Child: Care, Health, and Development, 28*, 513–521.

No comparison of service delivery models

Glogowska, M., Roulstone, S., Enderby, P., & Peters, T. J. (2000). Randomised controlled trial of community based speech and language therapy in preschool children. *BMJ: British*

Medical Journal, 321(7266), 923–928.

No comparison of service delivery models or dosage; Treatments vs. no treatment

Glogowska, M., Roulstone, S., Peters, T. J., & Enderby, P. (2006). Early speech- and language-impaired children: Linguistic, literacy, and social outcomes. *Developmental Medicine and Child Neurology, 48,* 489–494.

No comparison of service delivery models

Glover, T. A., & DiPerna, J. C. (2007). Service delivery for response to intervention: Core components and directions for future research. *School Psychology Review, 36,* 526–540.

No comparison of service delivery models

Goetze, L. D., & Behl, D. D. (2005). *An outcomes-based approach to evaluating preschool services and costs in Wyoming*: Early Intervention Research Institute. Retrieved from State of Wyoming Legislature website: http://legisweb.state.wy.us/2005/interim/develop/PReport.pdf

Treatment not held constant

Goetze, L. D., Immel, N., Escobar, C. M., & Gillette, Y. (1993). Does more intensive neonatal intensive care unit follow-up service result in better outcomes? A cost-effective analysis. *Early Education and Development, 4*, 275–289.

No description of speech-language services; No comparison of speech-language service delivery models

Goldstein, H. (2002). Communication intervention for children with autism: A review of treatment efficacy. *Journal of Autism and Developmental Disorders, 32*, 373–396.

No comparison of service delivery models

Gottlieb, J., Gampel, D. H., & Budoff, M. (1975). Classroom behavior of retarded children before and after integration into regular classes. *Journal of Special Education, 9*(3), 307–315.

Wrong population (too old)

Graham, M. S., & Avent, J. (2004). A discipline-wide approach to group treatment. *Topics in Language Disorders, 24*(2), 105–117.

No comparison of service delivery models

Granpeesheh, D., Dixon, D. R., Tarbox, J., Kaplan, A. M., & Wilke, A. E. (2009). The effects of age and treatment intensity on behavioral intervention outcomes for children with autism spectrum disorders. *Research in Autism Spectrum Disorders, 3*, 1014–1022. doi:10.1016/j.rasd.2009.06.007.

No speech-language outcomes

Gray, B. B., & Barker, K. (1977). Use of aides in an articulation therapy program. *Exceptional Children, 43*, 534–536.

Wrong population (too old)

Green, G., Brennan, L. C., & Fein, D. (2002). Intensive behavioral treatment for a toddler at high risk for autism. *Behavior Modification, 26*, 69–102.

No comparison of service delivery models; No clinical question

Grisham-Brown, J., Schuster, J. W., Hemmeter, M. L., & Collins, B. C. (2000). Using an embedding strategy to teach preschoolers with significant disabilities. *Journal of Behavioral Education, 10*, 139–162.

No comparison of service delivery models

Guglielmo, H. M., & Tryon, G. S. (2001). Social skill training in an integrated preschool program. *School Psychology Quarterly, 16*, 158–175.

Different treatments

Guitar, B., Schaefer, H. K., Donahue-Kilburg, G., & Bond, L. (1992). Parent verbal interactions and speech rate: A case study in stuttering. *Journal of Speech and Hearing Research, 35*, 742–754.

No comparison of service delivery models

Guralnick, M. J. (1975). Early classroom based intervention and the role of organizational structure. *Exceptional Children, 42*(1), 25–31.

Not a study; get for references

Guralnick, M. J. (1981). The efficacy of integrating handicapped children in early education settings: Research implications. *Topics in Early Childhood Special Education, 1*, 57–71.

Not a study; article of interest

Guralnick, M. J. (1981). The social behavior of preschool children at different developmental levels: Effects of group composition. *Journal of Experimental Child Psychology, 31*, 115–130.

Observation under different conditions, not treatment

Guralnick, M. J., Connor, R. T., Hammond, M., Gottman, J. M., & Kinnish, K. (1996). Immediate effects of mainstreamed settings on the social interactions and social integration of preschool children. *American Journal on Mental Retardation, 100*, 359–377.

No speech-language outcomes

Guralnick, M. J., Connor, R. T., Hammond, M. A., Gottman, J. M., & Kinnish, K. (1996). The peer relations of preschool children with communication disorders. *Child Development, 67*, 471–489.

No comparison of service delivery models; No treatments

Guralnick, M. J., & Groom, J. M. (1988). Peer interactions in mainstreamed and specialized classrooms: A comparative analysis. *Exceptional Children, 54*, 415–425.

Treatment not constant; Observation under different conditions

Gutstein, S. E., Burgess, A. F., & Montfort, K. (2007). Evaluation of the Relationship Development Intervention Program. *Autism, 11*, 397–411.

No comparison of service delivery models

Haavik, S. F., Spradlin, J. E., & Altman, K. I. (1984). Generalization and maintenance of language responses: A study across trainers, schools, and home settings. *Behavior Modification, 8*, 331–359.

No clinical question

Hadley, P. A., & Schuele, C. M. (1998). Facilitating peer interaction: Socially relevant objectives for preschool language intervention. *American Journal of Speech-Language Pathology, 7*(4), 25–36.

Not a study

Hadley, P. A., Simmerman, A., Long, M., & Luna, M. (2000). Facilitating language development for inner-city children: Experimental evaluation of a collaborative, classroom-based intervention. *Language, Speech, and Hearing Services in Schools, 31*, 280–295.

Wrong population (too old)

Halpern, R. (1984). Lack of effects for home-based early intervention? Some possible explanations. *American Journal of Orthopsychiatry, 54*, 33–42.

Not a study; no original data; get for references

Han, S. S., Catron, T., Weiss, B., & Marciel, K. K. (2005). A teacher-consultation approach to social skills training for pre-kindergarten children: Treatment model and short-term outcome effects. *Journal of Abnormal Child Psychology, 33,* 681–693. doi:10.1007/s10802-005-7647-1.

No comparison of service delivery models

Hancock, T. B., & Kaiser, A. P. (1996). Siblings' use of milieu teaching at home. *Topics in Early Childhood Special Education, 16,* 168–190.

No comparison of service delivery models or dosage

Hancock, T. B., & Kaiser, A. P. (2002). The effects of trainer-implemented enhanced milieu teaching on the social communication of children with autism. *Topics in Early Childhood Special Education, 22,* 39–54.

No comparison of service delivery models or dosage

Hancock, T. B., Kaiser, A. P., & Delaney, E. M. (2002). Teaching parents of preschoolers at high risk: Strategies to support language and positive behavior. *Topics in Early Childhood Special Education, 22*(4), 191–212.

No comparison of service delivery models or dosage

Handleman, J. S., & Harris, S. L. (1980). Generalization from school to home with autistic children. *Journal of Autism and Developmental Disorders, 10,* 323–333.

No comparison of service delivery models or dosage; For school-age systematic review:

rejected by committee—no speech-language pathology

Handleman, J. S., & Harris, S. L. (1983). A comparison of one-to-one versus couplet instruction with autistic children. *Behavioral Disorders, 9,* 22–26.

No speech-language outcomes; Limited by mixed ages

Handleman, J. S., Harris, S. L., & Alessandri, M. (1990). Mothers, fathers, teachers, and speech therapists as assessors of treatment outcome for children with autism. *Education & Treatment of Children, 13,* 153–158.

No comparison of service delivery models; No clinical question

Handleman, J. S., Harris, S. L., Celiberti, D., Lilleheht, E., & Tomchek, L. (1991). Developmental changes of preschool children with autism and normally developing peers. *Infant-Toddler Intervention: The Transdisciplinary Journal, 1,* 137–143.

No comparison of service delivery models

Handleman , J. S., Harris S., L., Kristoff, B., Fuentes, F., & Alessandri, M. (1991). A specialized program for preschool children with autism. *Language, Speech, and Hearing Services in Schools, 22,* 107–110.

No comparison of service delivery models

Hardiman, S., Guerin, S., & Fitzsimons, E. (2009). A comparison of the social competence of children with moderate intellectual disability in inclusive versus segregated school

settings. *Research in Developmental Disabilities, 30,* 397–407.

Wrong population (too old)

Harris, M. D., & Reichle, J. (2004). The impact of aided language stimulation on symbol comprehension and production in children with moderate cognitive disabilities. *American Journal of Speech-Language Pathology, 13,* 155–167.

No comparison of service delivery models or dosage

Harris, S. L., Handleman, J. S., Gordon, R., Kristoff, B., & Fuentes, F. (1991). Changes in cognitive and language functioning of preschool children with autism. *Journal of Autism and Developmental Disorders, 21,* 281–290.

No comparison of service delivery models

Harris, S. L., Wolchik, S. A., & Milch, R. E. (1982). Changing the speech of autistic children and their parents. *Child & Family Behavior Therapy, 4*(2), 151–173.

Treatment vs. no treatment; No comparison of service delivery models or dosage

Harris, S. L., Wolchik, S. A., & Weitz, S. (1981). The acquisition of language skills by autistic children: Can parents do the job? *Journal of Autism and Developmental Disorders, 11*, 373–384. doi:10.1007/BF01531613.

No comparison of service delivery models or dosage; No clinical question

Harris, V., Onslow, M., Packman, A., Harrison, E., & Menzies, R. (2002). An experimental

investigation of the impact of the Lidcombe Program on early stuttering. *Journal of Fluency Disorders, 27*, 203–214.

No comparison of service delivery models

Harrison, E., Onslow, M., & Menzies, R. (2004). Dismantling the Lidcombe Program of Early Stuttering Intervention: Verbal contingencies for stuttering and clinical measurement. *International Journal of Language & Communication Disorders, 39*, 257–267.

No comparison of service delivery models or dosage

Harrison, E., Wilson, L., & Onslow, M. (1999). Distance intervention for early stuttering with the Lidcombe Programme. *Advances in Speech Language Pathology, 1*, 31–36.

No comparison of service delivery models

Harrower, J. K., & Dunlap, G. (2001). Including children with autism in general education classrooms: A review of effective strategies. *Behavior Modification, 25*, 762–784. doi:10.1177/0145445501255006.

No original data; Reviews treatments not service delivery models

Hastings, R. P., & Symes, M. D. (2002). Early intensive behavioral intervention for children with autism: Parental therapeutic self-efficacy. *Research in Developmental Disabilities, 23*, 332–341.

No comparison of service delivery models; No clinical question

Hatcher, P. J., Hulme, C., Miles, J. N., Carroll, J. M., Hatcher, J., Gibbs, S., … Snowling, M. J. (2006). Efficacy of small group reading intervention for beginning readers with reading-delay: A randomised controlled trial. *Journal of Child Psychology and Psychiatry, 47*, 820–827.

Rejected by committee: No speech-language pathology, No communication disorder;

Hayward, D., Eikeseth, S., Gale, C., & Morgan, S. (2009). Assessing progress during treatment for young children with autism receiving intensive behavioural interventions. *Autism, 13,* 613–633. doi:10.1177/1362361309340029.

No clinical question

Hecimovic, A., Fox, J. J., Shores, R. E., & Strain, P. S. (1985). An analysis of developmentally integrated and segregated free play settings and the generalization of newly-acquired social behaviors of socially withdrawn preschoolers. *Behavioral Assessment, 7,* 367–388.

Treatment not provided in different settings, just general

Hemmeter, M. L., & Kaiser, A. P. (1994). Enhanced milieu teaching: Effects of parent-implemented language intervention. *Journal of Early Intervention, 18,* 269–289.

No comparison of service delivery models

Henderson, M. (2004). *Efficacy of modified parent training to facilitate expressive language of children with an expressive language delay.* Louisiana State University. Retrieved from http://etd.lsu.edu/docs/available/etd-04142005-

120018/unrestricted/Henderson_thesis.pdf.

No comparison of service delivery models

Hendrickson, J. M., Strain, P. S., Tremblay, A., & Shores, R. E. (1982). Interactions of behaviorally handicapped children: Functional effects of peer social initiations. *Behavior Modification, 6,* 323–353. doi: 10.1177/014544558263002.

No clinical question

Hersh, W. R., Hickman, D. H., Severance, S. M., Dana, T. L., Krages, K. P., & Helfand, M. (2001). *Telemedicine for the Medicare population* (Evidence Report/Technology Assessment 24). Rockville, MD, USA: Agency for Healthcare Research and Quality.

Wrong population (too old); Not speech-language pathology

Hersh, W. R., Wallace, J. A., Patterson, P. K., Shapiro, S. E., Kraemer, D. F., Eilers, G. M., … Helfand, M. (2001). Telemedicine for the Medicare population: Pediatric, obstetric, and clinician-indirect home interventions. *Evidence Report Technology Assessment (Summary), 24*(Suppl.), 1–32.

Not speech-language disorder

Hindson, B., Byrne, B., Fielding-Barnsley, R., Newman, C., Hine, D. W., & Shankweiler, D. (2005). Assessment and early instruction of preschool children at risk for reading disability. *Journal of Educational Psychology, 97,* 687–704.

No comparison of service delivery models

Hirota, E., & Tanaka, Y. (1996). Assessment and intervention programmes for hearing-impaired infants in Teikyo University Hospital. *Early Child Development and Care, 122*, 63–74.

No comparison of service delivery models

Hirst, E., & Britton, L. (1998). Specialised service to children with specific language impairment in mainstream schools. *International Journal of Language & Communication Disorders, 33*, 593–598.

No comparison of service delivery models

Holahan, A., & Costenbader, V. (2000). A comparison of developmental gains for preschool children with disabilities in inclusive and self-contained classrooms. *Topics in Early Childhood Special Education, 20*, 224–235.

No separate speech-language outcomes

Holland, J. (1981). The Lancaster Portage Project: A home based service for developmentally delayed young children and their families. *Health Visit, 54*(11), 486–488.

Not a study; no indication of comparison data

Holmes, N., Hemsley, R., Rickett, J., & Likierman, H. (1982). Parents as cotherapists: Their perceptions of a home-based behavioral treatment for autistic children. *Journal of Autism and Developmental Disorders, 12*, 331–342.

No speech-language outcomes

Holzhauser-Peters, L., & Husemann, D. A. (1988). Alternative service delivery models for more efficient and effective treatment programs. *Clinical Connection, 3*, 16–18. *Not peer reviewed; Not a journal—WorldCat classification: serials/magazines/newspapers; Cannot get through DOCLINE*

Hornby, G., & Jensen-Procter, G. (1984). Parental speech to language delayed children: A home intervention study. *British Journal of Disorders of Communication, 19*, 97–103. *Treatment vs. no treatment; No comparison of service delivery models*

Howard, J. S., Sparkman, C. R., Cohen, H. G., Green, G., & Stanislaw, H. (2005). A comparison of intensive behavior analytic and eclectic treatments for young children with autism. *Research in Developmental Disabilities, 26*, 359–383. *Treatments too dissimilar; AP vs. GP comparison groups*

Howell, K. W., & Kaplan, J. S. (1978). Monitoring peer tutor behavior. *Exceptional Children, 45*(2), 135–137. *Wrong population (too old)*

Howlin, P. (1981). The results of a home-based language training programme with autistic children. *British Journal of Disorders of Communication, 16*, 73–88. *Wrong population (age 3–11)*

Howlin, P., Magiati, I., & Charman, T. (2009). Systematic review of early intensive behavioral interventions for children with autism. *American Journal on Intellectual and Developmental Disabilities, 114*, 23–41. doi:10.1352/2009.114:23-41.

No comparison of service delivery models

Howlin, P., & Rutter, M. (1989). Mothers' speech to autistic children: A preliminary causal analysis. *Journal of Child Psychology and Psychiatry, 30*, 819–843.

Treatment vs. no treatment

Hughes, D. (1989). Generalization from language therapy to classroom academics. *Seminars in Speech and Language, 10*, 218–228.

Not a study

Hulsing, M. M., Luetke-Stahlman, B., Loeb, D. F., Nelson, P., & Wegner, J. (1995). Analysis of successful initiations of three children with hearing loss mainstreamed in kindergarten classrooms. *Language, Speech, and Hearing Services in Schools, 26*, 45–57.

Wrong population (Kindergarten)

Hume, K., Bellini, S., & Pratt, C. (2005). The usage and perceived outcomes of early intervention and early childhood programs for young children with autism spectrum disorder. *Topics in Early Childhood Special Education, 25*, 195–207.

No data to answer clinical question

Humm, S. P., Blampied, N. M., & Liberty, K. A. (2005). Effects of parent-administered, home-based, high-probability request sequences on compliance by children with developmental disabilities. *Child & Family Behavior Therapy, 27*(3), 27–45.

No clinical question

Hundert, J. P. (2007). Training classroom and resource preschool teachers to develop inclusive class interventions for children with disabilities: Generalization to new intervention targets. *Journal of Positive Behavior Interventions, 9*, 159–173.

No comparison of service delivery models

Hundert, J., Mahoney, B., Mundy, F., & Vernon, M. L. (1998). A descriptive analysis of developmental and social gains of children with severe disabilities in segregated and inclusive preschools in southern Ontario. *Early Childhood Research Quarterly, 13*, 49–65.

Classrooms not described

Hung, D. W., & Thelander, M. J. (1978). Summer camp treatment program for autistic children. *Exceptional Children, 44*, 534–536.

No comparison of service delivery models

Hunt, P., Soto, G., Maier, J., Liboiron, N., & Bae, S. (2004). Collaborative teaming to support preschoolers with severe disabilities who are placed in general education early childhood programs. *Topics in Early Childhood Special Education, 24*(3), 123–142.

No comparison of service delivery models or dosage

Hunt, P., Soto, G., Maier, J., Muller, E., & Goetz, L. (2002). Collaborative teaming to support students with augmentative and alternative communication needs in general education classrooms. *AAC: Augmentative & Alternative Communication, 18*, 20–35.

No comparison of service delivery models

Hurth, J., Shaw, E., Izeman, S. G., Whaley, K., & Rogers, S. J. (1999). Areas of agreement about effective practices among programs serving young children with autism spectrum disorders. *Infants and Young Children, 12*(2), 17–26.

No clinical question

Hwa-Froelich, D. A., & Matsuo, H. (2005). Vietnamese children and language-based processing tasks. *Language, Speech, and Hearing Services in Schools, 36*, 230–243.

No comparison of service delivery models; No clinical question

Iacono, T. A., Chan, J. B., & Waring, R. E. (1998). Efficacy of a parent-implemented early language intervention based on collaborative consultation. *International Journal of Language & Communication Disorders, 33*, 281–303. doi:10.1080/136828298247758.

No comparison of service delivery models or dosage

Ingersoll, B., & Gergans, S. (2007). The effect of a parent-implemented imitation intervention on spontaneous imitation skills in young children with autism. *Research in Developmental*

Disabilities, 28, 163–175.

No comparison of service delivery models

Ingham, R. J., & Cordes, A. K. (1998). Treatment decisions for young children who stutter: Further concerns and complexities. *American Journal of Speech-Language Pathology, 7*(3), 10–19.

No clinical question; Not a study

Innocenti, M. S. (1993). Reflections on "Are more intensive early intervention programs more effective? A review of the literature." *Exceptionality: A Research Journal, 4,* 59–63.

Not a study

Innocenti, M. S., Hollinger, P. D., Escobar, C. M., & White, K. R. (1993). The cost-effectiveness of adding one type of parent involvement to an early intervention program. *Early Education and Development, 4*, 306–326.

Treatment not held constant

Innocenti, M. S., & White, K. R. (1993). Are more intensive early intervention programs more effective? A review of the literature. *Exceptionality: A Research Journal, 4*, 31–50.

Not a study—review; Article of interest

Ireland, J. L., Sanders, M. R., & Markie-Dodds, C. (2003). The impact of parent training on marital functioning: A comparison of two group versions of the triple p—positive

parenting program for parents of children with early-onset conduct problems. *Behavioural and Cognitive Psychotherapy, 31*(2), 127–142. doi:10.1017/S1352465803002017.

No clinical question

Iversen, S., Tunmer, W. E., & Chapman, J. W. (2005). The effects of varying group size on the reading recovery approach to preventive early intervention. *Journal of Learning Disabilities, 38,* 456–472.

Wrong population (too old)

Jacobson, J., W., Mulick, J. A., & Green, G. (1998). Cost-benefit estimates for early intensive behavioral intervention for young children with autism: General model and single state case. *Behavioral Interventions, 13*, 201–226.

No speech-language outcomes

Jacoby, G. P., Lee, L., Kummer, A. W., Levin, L., & Creaghead, N. A. (2002). The number of individual treatment units necessary to facilitate functional communication improvements in the speech and language of young children. *American Journal of Speech-Language Pathology, 11*, 370–380.

No comparison of service delivery models or dosage; Different treatments; Article of interest

Jago, J. L., Jago, A., & Hart, M. (1984). An evaluation of the total communication approach for

teaching language skills to developmentally delayed preschool children. *Education and Training of the Mentally Retarded, 19,* 175–182.

No data on two comparison groups

Jameson, J. M., McDonnell, J., Johnson, J. W., Riesen, T., & Polychronis, S. (2007). A comparison of one-to-one embedded instruction in the general education classroom and one-to-one massed practice instruction in the special education classroom. *Education and Treatment of Children, 30,* 23–44.

Wrong population (too old)

Janiszewski, C., Noel, H., & Sawyer, A. G. (2003). A meta-analysis of the spacing effect in verbal learning: Implications for research on advertising repetition and consumer memory. *Journal of Consumer Research, 30,* 138–149.

No clinical question; ordered for references

Jenkins, J. R., & Mayhall, W. F. (1976). Development and evaluation of a resource teacher program. *Exceptional Children, 43,* 21–29.

Wrong population (too old)

Jenkins, J. R., Odom, S. L., & Speltz, M. L. (1989). Effects of social integration on preschool children with handicaps. *Exceptional Children, 55,* 420–428.

Mixed diagnosis; Data not separated; Not all children with speech-language disorder

Jenkins, J. R., Sells, C. J., & Brady, D. (1982). Effects of developmental therapy on motor impaired children. *Physical & Occupational Therapy in Pediatrics, 2*(4), 19–28.

Not speech-language disorder

Jenkins, J. R., Speltz, M. L., & Odom, S. L. (1985). Integrating normal and handicapped preschoolers: Effects on child development and social interaction. *Exceptional Children, 52*, 7–17.

Not all children with speech-language disorder; Data not separated

Jocelyn, L. J., Casiro, O. G., Beattie, D., Bow, J., & Kneisz, J. (1998). Treatment of children with autism: A randomized controlled trial to evaluate a caregiver-based intervention program in community day-care centers. *Journal of Developmental and Behavioral Pediatrics, 19*, 326–334.

Treatment vs. no treatment; No comparison of service delivery models

Johnson, C. R., Handen, B. L., Butter, E., Wagner, A., Mulick, J., Sukhodolsky, D. G., … Smith, T. (2007). Development of a parent training program for children with pervasive developmental disorders. *Behavioral Interventions, 22*, 201–221.

Not speech-language outcomes

Johnson, D. W., Johnson, R. T., & Maruyama, G. (1983). Interdependence and interpersonal attraction among heterogeneous and homogeneous individuals: A theoretical formulation and a meta-analysis of the research. *Review of Educational Research 53*, 5–54.

doi:10.3102/00346543053001005.

No clinical question

Johnson, S., Ring, W., Anderson, P., & Marlow, N. (2005). Randomised trial of parental support for families with very preterm children: Outcome at 5 years. *Archives of Disease in Childhood, 90,* 909–915.

Different treatments; No speech-language outcomes; Final data excludes children with disabilities

Johnston, S. S., Davenport, L., Kanarowski, B., Rhodehouse, S., & McDonnell, A. P. (2009). Teaching sound letter correspondence and consonant-vowel-consonant combinations to young children who use augmentative and alternative communication. *Augmentative and Alternative Communication, 25,* 123–135.

No comparison of service delivery models

Jones, M., Onslow, M., Harrison, E., & Packman, A. (2000). Treating stuttering in young children: Predicting treatment time in the Lidcombe Program. *Journal of Speech, Language, and Hearing Research, 43,* 1440–1450.

Not able to specifically answer clinical question; Article of interest

Jones, M., Onslow, M., Packman, A., Williams, S., Ormond, T., Schwarz, I., & Gebski, V. (2005). Randomised controlled trial of the Lidcombe Programme of early stuttering intervention. *BMJ: British Medical Journal, 331*(7518), 659–661.

doi:10.1136/bmj.38520.451840.E0.

No comparison of service delivery models

Joseph, L. M. (2002). Helping children link sound to print: Phonics procedures for small-group or whole-class settings. *Intervention in School and Clinic, 37,* 217–221.

Different treatments; No clinical question

Justice, L. M., Chow, S.-M., Capellini, C., Flanigan, K., & Colton, S. (2003). Emergent literacy intervention for vulnerable preschoolers: Relative effects of two approaches. *American Journal of Speech-Language Pathology, 12,* 320–332. doi: 10.1044/1058-0360(2003/078).

No comparison of service delivery models; Different treatments

Justice, L. M., & Ezell, H. K. (2000). Enhancing children's print and word awareness through home-based parent intervention. *American Journal of Speech-Language Pathology, 9,* 257–269.

Not speech-language disorder

Justice, L. M., & Kaderavek, J. N. (2004). Embedded-explicit emergent literacy intervention I: Background and description of approach. *Language, Speech, and Hearing Services in Schools, 35,* 201–211.

Not a study

Justice, L. M., Kaderavek, J., Bowles, R., & Grimm, K. (2005). Language impairment, parent child shared reading, and phonological awareness: A feasibility study. *Topics in Early Childhood Special Education, 25*, 143–156. doi:10.1177/02711214050250030201.

No comparison of service delivery models; Different treatments

Justice, L. M., Mashburn, A., Pence, K. L., & Wiggins, A. (2008). Experimental evaluation of a preschool language curriculum: Influence on children's expressive language skills. *Journal of Speech, Language, and Hearing Research, 51,* 983–1001. doi:10.1044/1092-4388(2008/072).

No comparison of service delivery models; Different treatments

Justice, L. M., Meier, J., & Walpole, S. (2005). Learning new words from storybooks: An efficacy study with at-risk kindergartners. *Language, Speech, and Hearing Services in Schools, 36,* 17–32.

Wrong population (Kindergarten)

Juul, K. D. (1978). European approaches and innovations in serving the handicapped. *Exceptional Children, 44*, 322–330.

Not a study

Kaiser, A. P. (1995). Preparing parent trainers: An experimental analysis of effects on trainers, parents, and children. *Topics in Early Childhood Special Education, 15*, 385–414.

No comparison of service delivery models or dosage

Kaiser, A. P., Fischer, R., Alpert, C., Hemmeter, M., Tiernan, M.,& Ostrosky, M. (1990, May). *Toward a hybrid model of parent-implemented language intervention: Analysis of the effects of milieu and responsive-interaction teaching by parents.* Paper presented at the Annual Meeting of the American Association on Mental Retardation, Atlanta, GA.

No comparison of service delivery models or dosage

Kaiser, A. P., Ostrosky, M., & Alpert, C. (1993). Training teachers to use environmental arrangement and milieu teaching with nonvocal preschool children. *Journal of the Association for Persons With Severe Handicaps (JASH), 18,* 188–199.

No comparison of service delivery models or dosage

Kaiser, A. P., Hester, P., Harris-Solomon, A., & Keetz, A. (1994, May–June). Enhanced milieu teaching: An analysis of applications by interventionists and classroom teachers. *Paper presented at the annual meeting of the American Association on Mental Retardation, Boston, MA.*

Not published in a peer reviewed journal; initially accepted for Birth-5 but rejected because of peer-review status; keep as article of interest

Kaiser, A. P., Hancock, T. B., & Hester, P. P. (1998). Parents as cointerventionists: Research on applications of naturalistic language teaching procedures. *Infants and Young Children, 10*(4), 46–55.

Not a study

Kaiser, A. P., Hancock, T. B., & Nietfeld, J. P. (2000). The effects of parent-implemented enhanced milieu teaching on the social communication of children who have autism. *Early Education and Development, 11*, 423–446.

No comparison of service delivery models or dosage

Kaiser, A. P., Hemmeter, M. L., & Ostrosky, M. M. (1996). The effects of teaching parents to use responsive interaction strategies. *Topics in Early Childhood Special Education, 16,* 375–406.

No comparison of service delivery models or dosage

Kaiser, A. P., Hemmeter, M. L., Ostrosky, M. M., & Alpert, C. L. (1995). The effects of group training and individual feedback on parent use of milieu teaching. *Journal of Childhood Communication Disorders, 16*(2), 39–48.

No comparison of service delivery models or dosage

Kaiser, A. P., & Hester, P. P. (1994). Generalized effects of enhanced milieu teaching. *Journal of Speech and Hearing Research, 37,* 1320–1340.

No comparison of service delivery models or dosage

Kalambouka, A., Farrell, P., Dyson, A., & Kaplan, I. (2005). The impact of population inclusivity in schools on student outcomes. In: *Research Evidence in Education Library.* London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of

London.

Wrong population (too old)

Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology, 36*, 567–589.

No speech-language outcomes

Kamps, D., Walker, D., Locke, P., Delquadri, J., & Hall, R. V. (1990). A comparison of instructional arrangements for children with autism served in a public school setting. *Education and Treatment of Children, 13*, 197–215.

Wrong population (school-age)

Kamps, D. M., & Barbetta, P. M. (1994). Classwide peer tutoring: An integration strategy to improve reading skills and promote peer interactions among students with autism and general education peers. *Journal of Applied Behavior Analysis, 27*, 49–61.

Wrong population (too old)

Karweit, N. (1989). The effects of a story-reading program on the vocabulary and story comprehension skills of disadvantaged prekindergarten and kindergarten students. *Early Education & Development, 1*, 105–114.

Mixed population

Kashinath, S., Woods, J., & Goldstein, H. (2006). Enhancing generalized teaching strategy use in daily routines by parents of children with autism. *49,* 466–485. doi:10.1044/1092-4388(2006/036).

No comparison of service delivery models or dosage

Kelman, E., & Schneider, C. (1994). Parent-child interaction: An alternative approach to the management of children's language difficulties. *Child Language Teaching and Therapy, 10*, 81–96.

No comparison of service delivery models

Kim, J. M., & Mahoney, G. (2005). The effects of relationship focused intervention on Korean parents and their young children with disabilities. *Research in Developmental Disabilities, 26,* 117–130.

Treatment vs. no treatment; Mixed age population

King, G. A., McDougall, J., Tucker, M. A., Gritzan, J., Malloy-Miller, T., Alambets, P., …. Gregory, K. (1999). An evaluation of functional, school-based therapy services for children with special needs. *Physical & Occupational Therapy in Pediatrics, 19*(2), 5–29.

Wrong population (school-age)

Kingston, M., Huber, A., Onslow, M., Jones, M., & Packman, A. (2003). Predicting treatment time with the Lidcombe Program: Replication and meta-analysis. *International Journal of Language & Communication Disorders, 38,* 165–177.

No comparison of service delivery models; No clinical question

Kishida, Y., & Kemp, C. (2009). The engagement and interaction of children with autism spectrum disorder in segregated and inclusive early childhood center-based settings. *Topics in Early Childhood Special Education, 29,* 105–118.

Treatment not held constant; Speech-language outcomes unclear

Kochanek, T. T., & Buka, S. L. (1999). Influential factors in inclusive versus non-inclusive placements for preschool children with disabilities. *Early Education and Development, 10*, 191–208.

No clinical question

Koegel, R. L., Bimbela, A., & Schreibman, L. (1996). Collateral effects of parent training on family interactions. *Journal of Autism and Developmental Disorders, 26*, 347–359.

Different treatment approaches—not different service delivery models

Koegel, R. L., Camarata, S., Koegel, L. K., Ben-Tall, A., & Smith, A. E. (1998). Increasing speech intelligibility in children with autism. *Journal of Autism and Developmental Disorders, 28*, 241–251.

Different treatment approaches, not different service delivery models

Koegel, R. L., Dunlap, G., & Dyer, K. (1980). Intertrial interval duration and learning in autistic children. *Journal of Applied Behavior Analysis, 13*, 91–99.

Wrong population (school-age); No clinical question

Koegel, R. L., Glahn, T. J., & Nieminen, G. S. (1978). Generalization of parent-training results. *Journal of Applied Behavior Analysis, 11*, 95–109.

Different service delivery models to parents, not to children

Kohl, F. L., Wilcox, B. L., & Karlan, G. R. (1978). Effects of training conditions on the generalization of manual signs with moderately handicapped students. *Education & Training of the Mentally Retarded, 13*, 327–335.

Wrong population (age 7–8)

Kohler, F. W., Anthony, L. J., Steighner, S. A., & Hoyson, M. (2001). Teaching social interaction skills in the integrated preschool: An examination of naturalistic tactics. *Topics in Early Childhood Special Education, 21*, 93 –103.

No comparison of service delivery models

Kohler, F. W., Strain, P. S., Hoyson, M., Davis, L., Donina, W. M., & Rapp, N. (1995). Using a group-oriented contingency to increase social interactions between children with autism and their peers: A preliminary analysis of corollary supportive behaviors. *Behavior Modification, 19*, 10–32.

No clinical question

Kohnert, K., Yim, D., Nett, K., Kan, P. F., & Duran, L. (2005). Intervention with linguistically

diverse preschool children: A focus on developing home language(s). *Language, Speech, and Hearing Services in Schools, 36,* 251–263.

No comparison of service delivery models or dosage; No clinical question

Kohut, K. S., & Andrews, J. (2004). The efficacy of parent training programs for ADHD children: A fifteen-year review. *Developmental Disabilities Bulletin, 32,* 155–172.

Wrong population (Too old)

Koppenhaver, D. A., Erickson, K. A., & Skotko, B. G. (2001). Supporting communication of girls with Rett syndrome and their mothers in storybook reading. *International Journal of Disability, Development and Education, 48,* 395–410.

No comparison of service delivery models

Korn, E. L., & Baumrind, S. (1991). Randomised clinical trials with clinician-preferred treatment. *Lancet, 337*(8734), 149–152.

No clinical question

Kot, A., & Law, J. (1995). Intervention with preschool children with specific language impairments: A comparison of two different approaches to treatment. *Child Language Teaching and Therapy, 11*, 144–162. doi:10.1177/026565909501100202.

Different treatments

Kouri, T. A. (2005). Lexical training through modeling and elicitation procedures with late

talkers who have specific language impairment and developmental delays. *Journal of Speech, Language, and Hearing Research, 48,* 157–171.

Different treatments

Koutsoftas, A. D., Harmon, M. T., & Gray, S. (2009). The effect of Tier 2 intervention for phonemic awareness in a response-to-intervention model in low-income preschool classrooms. *Language, Speech, and Hearing Services in Schools, 40,* 116–130.

No comparison of service delivery models; No clinical question

Kroeger, K. A., Schultz, J. R., & Newsom, C. (2007). A comparison of two group-delivered social skills programs for young children with autism. *Journal of Autism and Developmental Disorders, 37,* 808–817. doi:10.1007/s10803-006-0207-x.

Different treatments

Ladouceur, R., & Martineau, G. (1982). Evaluation of regulated-breathing method with and without parental assistance in the treatment of child stutterers. *Journal of Behavior Therapy and Experimental Psychiatry, 13*, 301–306.

Wrong population

Lafasakis, M., & Sturmey, P. (2007). Training parent implementation of discrete-trial teaching: Effects on generalization of parent teaching and child correct responding. *Journal of Applied Behavior Analysis, 40,* 685–689.

No comparison of service delivery models

Laing, S. P., & Espeland, W. (2005). Low intensity phonological awareness training in a preschool classroom for children with communication impairments. *Journal of Communication Disorders, 38*, 65–82.

No comparison of service delivery models

Lancaster, G. (1991). *The effectiveness of parent administered input training for children with phonological disorders* (Unpublished master's thesis). City University, London, England.

Unpublished MSc thesis

Lasker, Z., Katz, M., Chirchick, R., Broquard, C., & Robitaille, E. (2007). *Ready, set, read! Assessing the impact of a parent education program for early childhood literacy: An Action Research Project*. Los Angeles: University of California, Los Angeles.

No comparison of service delivery models

Lattermann, C., Shenker, R. C., & Thordardottir, E. (2005). Progression of language complexity during treatment with the Lidcombe Program for Early Stuttering Intervention. *American Journal of Speech-Language Pathology, 14,* 242–253. doi:10.1044/1058-0360(2005/024).

No comparison of service delivery models

Lauder, C. E., Kanthor, H., Myers, G., & Resnick, J. (1979). Educational placement of children with spina bifida. *Exceptional Children, 45*, 432–437.

No clinical question

Law, J. (1997). Evaluating intervention for language impaired children: A review of the literature. *European Journal of Disorders of Communication, 32*(2), 1–14.

No comparison of service delivery models

Law, J., Boyle, J., Harris, F., Harkness, A., & Nye, C. (1998). Screening for speech and language delay: A systematic review of the literature. *NHS Health Technology Assessment Monograph Series, 2*(9).

No original data

Law, J., Dockrell, J. E., Castelnuovo, E., Williams, K., Seeff, B., & Normand, C. (2006). Early years centres for pre-school children with primary language difficulties: What do they cost, and are they cost-effective? *International Journal of Language & Communication Disorders, 41*, 67–81.

No clinical question; Cost data

Law, J., Durkin, C., Sargent, J., & Hanrahan, D. (1999). Beyond early language unit provision: Linguistic, developmental and behavioural outcomes. *Child Language Teaching & Therapy, 15*, 93–111.

No comparison of service delivery models

Law, J., Garrett, Z., & Nye, C. (2003). Speech and language therapy interventions for children

with primary speech and language delay or disorder (Art. No. CD004110). *Cochrane Database of Systematic Reviews*.

Systematic review; No original data

Law, J., Garrett, Z., & Nye, C. (2004). The efficacy of treatment for children with developmental speech and language delay/disorder: A meta-analysis. *Journal of Speech, Language, and Hearing Research, 47,* 924–943.

Meta-analysis; no original data

Law, J., Kot, A., & Barnett, G. (1999). *A comparison of two methods for providing intervention to three year old children with expressive/receptive language impairment.* Unpublished manuscript, Department of Language and Communication Science, City University, London, England.

Different treatments; Article of interest

Law, J., Lindsay, G., Peacey, N., Gascoigne, M., Soloff, N., Radford, J., & Band, S. (2002). Consultation as a model for providing speech and language therapy in schools: A panacea or one step too far? *Child Language Teaching and Therapy, 18,* 145–163. doi:10.1191/0265659002ct232oa.

No clinical question

Law, J., & Plunkett, C. (2009). *The interaction between behaviour and speech and language difficulties: Does intervention for one effect outcomes in the other?* London, England:

EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Wrong population (too old)

Law, M., Cadman, D., Rosenbaum, P., Walter, S., Russell, D., & DeMatteo, C. (1991). Neurodevelopmental therapy and upper-extremity inhibitive casting for children with cerebral palsy. *Developmental Medicine and Child Neurology, 33,* 379–387.

No speech-language outcomes

Leach, D., & Siddall, S. (1990). Parental involvement in the teaching of reading: A comparison of hearing reading, paired reading, pause, prompt, praise, and direct instruction methods. *British Journal of Educational Psychology, 60*, 349–355.

Wrong population (1st grade)

Lederer, S. H. (2001). Efficacy of parent-child language group intervention for late-talking toddlers. *Infant-Toddler Intervention: The Transdisciplinary Journal, 11*(3/4), 223–235.

No comparison of service delivery models or dosage

Lee, A. S., Law, J., & Gibbon, F. E. (2009). Electropalatography for articulation disorders associated with cleft palate (Art. No. CD006854). *Cochrane Database of Systematic Reviews*.

No comparison of service delivery models

Lee, S., & Kahn, J. V. (1998). Relationships of child progress with selected child, family, and

program variables in early intervention. *Infant Toddler Intervention: The Transdisciplinary Journal, 8,* 85–101.

Not speech-language outcomes

Leonard, L. B. (1975). Relational meaning and the facilitation of slow-learning children's language. *American Journal of Mental Deficiency, 80,* 180–185.

No comparison of service delivery models or dosage

Lerma, D. C., Swiezy, N. B., & Perkins-Parks, S. (2000). Skill acquisition in parents of children with developmental disabilities: Interaction between skill type and instructional format. *Research in Developmental Disabilities, 21,* 183–196.

No speech-language outcomes

Leseman, P. P. M., & Van den Boom, D. C. (1999). Effects of quantity and quality of home proximal processes on Dutch, Surinamese-Dutch and Turkish-Dutch pre-schoolers' cognitive development. *Infant and Child Development, 8,* 19–38.

Not speech-language outcomes

Leseman, P. P. M., & van Tuijl, C. (2001). Home support for bilingual development of Turkish 4-6-year-old immigrant children in the Netherlands: Efficacy of a home-based educational programme. *Journal of Multilingual and Multicultural Development, 22,* 309–324.

No comparison of service delivery models or dosage; No clinical question; Not children

with disabilities

Levitt, E., & Cohen, S. (1975). An analysis of selected parent-intervention programs for handicapped and disadvantaged children. *Journal of Special Education, 9*(4), 197–215.
No comparison of service delivery models

Levy, S., Kim, A.-H., & Olive, M. L. (2006). Interventions for young children with autism: A synthesis of the literature. *Focus on Autism and Other Developmental Disabilities, 21*, 55–62. doi:10.1177/10883576060210010701.
No original data

Lewis, A., Wilson, S., & McLaughlin. T.F. (1992). Resource room and the consulting model for servicing low achieving students: A review and analysis. *B.C. Journal of Special Education, 16,* 259–281.
No data

Lewis, C., Packman, A., Onslow, M., Simpson, J. M., & Jones, M. (2008). A Phase II trial of telehealth delivery of the Lidcombe Program of Early Stuttering Intervention. *American Journal of Speech-Language Pathology, 17,* 139–149.
No comparison of service delivery models

Liberty, K. (2004). Developmental gains in early intervention based on conductive education by young children with motor disorders. *International Journal of Rehabilitation Research,*

27, 17–25.

No speech-language outcomes

Lieding, R. T., & Gammell, C. (1982). Reading in the preschool. *Volta Review, 84*, 166–170.

No comparison of service delivery models or dosage; No clinical question

Lignugaris/Kraft, B., & Santos, R. M. (1997). Integrating effective teaching literature with literature on instruction in the natural environment. *Exceptionality, 7*, 139–141.

Not a study

Lincoln, M. A., & Onslow, M. (1997). Long-term outcome of early intervention for stuttering. *American Journal of Speech-Language Pathology, 6*(1), 51–58.

No clinical question

Lindsay, G. (2007). Educational psychology and the effectiveness of inclusive education/mainstreaming. *British Journal of Educational Psychology*, *77*(Pt. 1), 1–24.

No clinical question; Does not directly address

Lindsay, G., Desforges, M., Dockrell, J., Law, J., Peacey, N., & Beecham, J. (2008). *Effective and efficient use of resources in services for children and young people with speech, language and communication needs—Research for the Bercow Review* (Report No. DCSF-RW053). Retrieved from www.dcsf.gov.uk/rsgateway/DB/RRP/u015350/index.shtml.

No speech-language outcomes

Lindsay, G., Dockrell, J., Desforges, M., Law, J., & Peacey, N. (2010). Meeting the needs of children and young people with speech, language and communication difficulties. *International Journal of Language & Communication Disorders, 45*, 448–460. doi:10.3109/13682820903165693.

No speech-language outcomes; descriptive

Liscio, M., Adduci, A., Galbiati, S., Poggi, G., Sacchi, D., Strazzer, S., … Flannery, J. (2008). Cognitive-behavioural stimulation protocol for severely brain-damaged patients in the post-acute stage in developmental age. *Disability and Rehabilitation, 30*, 275–285.

No comparison of service delivery models; Different treatments

Lloyd, J. W., Forness, S. R., & Kavale, K. A. (1998). Some methods are more effective than others. *Intervention in School and Clinic, 33*, 195–200.

No clinical question

Lombardino, L., & Mangan, N. (1983). Parents as language trainers: Language programming with developmentally delayed children. *Exceptional Children, 49*, 358–361.

No comparison of service delivery models

Long, S. H., & Olswang, L. B. (1996). Readiness and patterns of growth in children with SELI (specific expressive language impairment). *American Journal of Speech-Language*

Pathology, *5*(1), 79–85.

No comparison of service delivery models

Lonigan, C. J. (1993). Somebody read me a story: Evaluation of a shared reading program in low-income daycare. *Society for Research in Child Development Abstracts, 9,* 219.

Only published abstract; Full text not available through Docline or HSL

Lonigan, C. J., Anthony, J. L., Bloomfield, B. G., Dyer, S. M., & Samwel, C. S. (1999). Effects of two shared-reading interventions on emergent literacy skills of at-risk preschoolers. *Journal of Early Intervention, 22*, 306–322. doi:10.1177/105381519902200406.

Different treatments

Lonigan, C. J., Farver, J. A. M., Phillips, B. M., & Clancy-Menchetti, J. (2009). Promoting the development of preschool children's emergent literacy skills: A randomized evaluation of a literacy-focused curriculum and two professional development models. *Reading and Writing*. Advance online publication. doi:10.1007/s11145-009-9214-6.

Different treatments

Losardo, A., & Bricker, D. (1994). Activity-based intervention and direct instruction: A comparison study. *American Journal on Mental Retardation, 98,* 744–765.

Different treatments

Lovaas, O. I. (1987). Behavioral treatment and normal educational and intellectual functioning in

young autistic children. *Journal of Consulting and Clinical Psychology, 55*, 3–9.

No speech-language outcomes

Lovelace, S., & Stewart, S. R. (2007). Increasing print awareness in preschoolers with language impairment using non-evocative print referencing. *Language, Speech, and Hearing Services in Schools, 38,* 16–30. doi:10.1044/0161-1461(2007/003).

No comparison of service delivery models

Lovett, M. W., Barron, R. W., Forbes, J. E., Cuksts, B., & Steinbach, K. A. (1994). Computer speech-based training of literacy skills in neurologically impaired children: A controlled evaluation. *Brain and Language, 47,* 117–154.

Different treatments

Ludlow, J. R., & Allen, L. M. (1979). The effect of early intervention and pre-school stimulus on the development of the Down's syndrome child. *Journal of Mental Deficiency Research, 23*, 29–44.

Different treatments

Ludwig, S., & Harstall, C. (2001). *Intensive intervention programs for children with autism* (HTA Report No. 8). Retrieved from www.ihe.ca/documents/HTA8_WEB_FINAL.pdf.

No comparison of service delivery models; Different treatments

Lundahl, B. W., Tollefson, D., Risser, H., & Lovejoy, M. C. (2008). A meta-analysis of father

involvement in parent training. *Research on Social Work Practice, 18,* 97–106.

Not speech-language disorder

Lundberg, I., Frost, J., & Petersen, O.-P. (1988). Effects of an extensive program for stimulating phonological awareness in preschool children. *Reading Research Quarterly, 23,* 263–284.

No comparison of service delivery models

Lydon, H., Healy, O., Leader, G., & Keohane, D.-D. (2008). The effects of intensive tact instruction on three verbal operants in non-instructional settings for two children with autism. *Journal of Speech-Language Pathology & Applied Behavior Analysis, 3,* (2/3), 35–46.

No comparison of service delivery models

Machalicek, W., O'Reilly, M. F., Beretvas, N., Sigafoos, J., Lancioni, G., Sorrells, A., … Rispoli, M. (2008). A review of school-based instructional interventions for students with autism spectrum disorders. *Research in Autism Spectrum Disorders, 2,* 395–416.

Mixed population; No comparison of service delivery models

Madden, J., O'Hara, J., & Levenstein, P. (1984). Home again: Effects of the mother-child home program on mother and child. *Child Development, 55,* 636–647.

Different treatments

Madden, N. A., & Slavin, R. E. (1983). Mainstreaming students with mild handicaps: Academic and social outcomes. *Review of Educational Research, 53*, 519–569. doi:10.2307/1170220.

Not a study

Magiati, I., Charman, T., & Howlin, P. (2007). A two-year prospective follow-up study of community-based early intensive behavioural intervention and specialist nursery provision for children with autism spectrum disorders. *Journal of Child Psychology and Psychiatry, 48*, 803–812.

Different treatments

Magiati, I., & Howlin, P. (2001). Monitoring the progress of preschool children with autism enrolled in early intervention programmes: Problems in cognitive assessment. *Autism: The International Journal of Research and Practice, 5*, 407–429.

No clinical question

Mahoney, G., & Snow, K. (1983). The relationship of sensorimotor functioning to children's response to early language training. *Mental Retardation, 21*, 248–254.

No comparison of service delivery models or dosage

Mahoney, G., Wheeden, C. A., & Perales, F. (2004). Relationship of preschool special education outcomes to instructional practices and parent-child interaction. *Research in Developmental Disabilities, 25*, 539–558.

Different treatments; No speech-language outcomes

Malmskog, S., & McDonnell, A. P. (1999). Teacher-mediated facilitation of engagement by children with developmental delays in inclusive preschools. *Topics in Early Childhood Special Education, 19,* 203–216.

No comparison of service delivery models

Mancil, G. R., Conroy, M. A., & Haydon, T. F. (2009). Effects of a modified milieu therapy intervention on the social communicative behaviors of young children with autism spectrum disorders. *Journal of Autism and Developmental Disorders, 39,* 149–163.

No comparison of service delivery models

Manset, G., & Semmel, M. I. (1997). Are inclusive programs for students with mild disabilities effective? A comparative review of model programs. *Journal of Special Education, 31,* 155–180. doi:10.1177/002246699703100201.

Wrong population (elementary grades)

Martin, S. S., Brady, M. P., & Williams, R. E. (1991). Effects of toys on the social behavior of preschool children in integrated and nonintegrated groups: Investigation of a setting event. *Journal of Early Intervention, 15*, 153–161.

No clinical question

Mathes, P. G., Fuchs, D., Roberts, P. H., & Fuchs, L. S. (1998). Preparing students with special

needs for reintegration: Curriculum-based measurement's impact on transenvironmental programming. *Journal of Learning Disabilities, 31,* 615–624.

Wrong population; Not a study

Matson, J. L., & Francis, K. L. (1994). Generalizing spontaneous language in developmentally delayed children via a visual cue procedure using caregivers as therapists. *Behavior Modification, 18,* 186–197. doi:10.1177/01454455940182003.

No comparison of service delivery models

Matson, J. L., Sevin, J. A., Box, M. L., Francis, K. L., & Sevin, B. M. (1993). An evaluation of two methods for increasing self-initiated verbalizations in autistic children. *Journal of Applied Behavior Analysis, 26,* 389–398.

Different treatments

Matson, M. L., Mahan, S., & Matson, J. L. (2009). Parent training: A review of methods for children with autism spectrum disorders. *Research in Autism Spectrum Disorders, 3,* 868–875.

No data; not a study

Matthews, S., Williams, R., & Pring, T. (1997). Parent-child interaction therapy and dysfluency: A single-case study. *European Journal of Disorders of Communication, 32*(3), 346–357.

Treatment vs. no treatment; No comparison of service delivery models

Maxon, A. B., & Bracket, D. (2006). Preparing children with hearing loss to enter the mainstream. *Volta Voices, 13*(4), 54–58.

No clinical question

Mayhall, W. F., & Jenkins, J. R. (1977). Scheduling daily of less-than-daily instruction: Implications for resource programs. *Journal of Learning Disabilities, 10*(3), 159–163.

Wrong population (too old)

McBride, B. A., Bae, J. H., & Rane, T. R. (1998). Family-school partnerships in prekindergarten at-risk programs: An exploratory study. *School Community Journal, 8,* 229–245.

No speech-language outcomes; "At risk" criteria to enter study, not speech-language disorders

McCabe, J. R., Jenkins, J. R., Mills, P. E., Dale, P. S., & Cole, K. N. (1999). Effects of group composition, materials, and developmental level on play in preschool children with disabilities. *Journal of Early Intervention, 22*, 164–178.

Not all children with communication disorders; No treatment

McCabe, J. R., Jenkins, J. R., Mills, P. E., Dale, P. S., Cole, K. N., & Pepler, L. (1996). Effects of play group variables on language use by preschool children with disabilities. *Journal of Early Intervention, 20,* 329–340. doi:10.1177/105381519602000406.

No treatment; Condition study

McCollum, J. A. (1984). Social interaction between parents and babies: Validation of an intervention procedure. *Child: Care, Health, and Development, 10,* 301–315.

No comparison of service delivery models

McCollum, J. A., & Stayton, V. D. (1985). Infant/parent interaction: Studies and intervention guidelines based on the SIAI model. *Journal of Early Intervention 9,* 125–135. doi:10.1177/105381518500900204.

No original data

McConachie, H., & Diggle, T. (2007). Parent implemented early intervention for young children with autism spectrum disorder: A systematic review. *Journal of Evaluation in Clinical Practice, 13,* 120–129.

No clinical question

McConachie, H., Randle, V., Hammal, D., & Le Couteur, A. (2005). A controlled trial of a training course for parents of children with suspected autism spectrum disorder. *The Journal of Pediatrics, 147,* 335–340.

No comparison of service delivery models

McCoun, M. R. (1989). Parent-centered speech therapy services compared with clinic-based speech therapy services for children with speech disorders. *Dissertation Abstracts International, 50.* (1990-52594-001)

Thesis—not peer reviewed

McCullough, A. (2001). Viability and effectiveness of teletherapy for pre-school children with special needs. *International Journal of Language & Communication Disorders, 36*(Suppl.), 321–326.

No comparison of service delivery models

McDade, H. L., & Varnedoe, D. R. (1987). Training parents to be language facilitators. *Topics in Language Disorders, 7*(3), 19–30.

Not a study

McDowell, R. L., & Brown, G. B. (1978). The emotionally disturbed adolescent: Development of program alternatives in secondary education. *Focus on Exceptional Children, 10*(4), 1–15.

Wrong population (too old); Not speech-language outcomes

McEachin, J. J., Smith, T., & Ivar, O. (1993). Long-term outcome for children with autism who received early intensive behavioral treatment. *American Journal on Mental Retardation, 97*, 359–372.

No speech-language outcomes

McGee, G. G., Morrier, M. J., & Daly, T. (1999). An incidental teaching approach to early intervention for toddlers with autism. *Journal of the Association for Persons With Severe Handicaps, 24*, 133–146.

No comparison of service delivery models

McGee, G. G., Paradis, T., & Feldman, R. S. (1993). Free effects of integration on levels of autistic behavior. *Topics in Early Childhood Special Education 13*, 57–67.

No speech-language outcomes

McGinty, A. S., & Justice, L. M. (2006). Classroom-based versus pull-out interventions: A review of the experimental evidence. *EBP Briefs, 1*(1), 1–25.

Systematic review; excludes other populations, no birth through age 2

McGoey, K. E., Eckert, T. L., & DuPaul, G. J. (2002). Early intervention for preschool-age children with ADHD: A literature review. *Journal of Emotional & Behavioral Disorders, 10*, 14–28.

No speech-language outcomes

McIntosh, B., Crosbie, S., Holm, A., Dodd, B., & Thomas, S. (2007). Enhancing the phonological awareness and language skills of socially disadvantaged preschoolers: An interdisciplinary programme. *Child Language Teaching and Therapy, 23*, 267–286. doi:10.1177/0265659007080678.

No comparison of service delivery models or dosage

McIntosh, R., Vaughn, S., & Zaragoza, N. (1991). A review of social interventions for students with learning disabilities. *Journal of Learning Disabilities, 24*, 451–458.

Wrong population (too old)

McIntyre, L. L. (2008). Parent training for young children with developmental disabilities: Randomized controlled trial. *American Journal on Mental Retardation, 113*, 356–368.
Treatment not held constant

McNamara, J. K., Vervaeke, S.-L., & Van Lankveld, J. (2008). An exploratory study of emergent literacy intervention for preschool children with language impairments. *Exceptionality Education Canada, 18*, 9–32.
Different treatments

McWilliam, R. A. (1995). Integration of therapy and consultative special education: A continuum in early intervention. *Infants and Young Children, 7*(4), 29–38.
No data; not a study

Mecrow, C., Beckwith, J., & Klee, T. (2009). An exploratory trial of the effectiveness of an enhanced consultative approach to delivering speech and language intervention in schools. *International Journal of Language & Communication Disorders,* Advance online publication. doi:10.3109/13682820903040268
No comparison of service delivery models

Mehran, M., & White, K. R. (1988). Parent tutoring as a supplement to compensatory education for first-grade children. *Remedial and Special Education (RASE), 9*(3), 35–41.

Wrong population (too old)

Millard, S. K., Edwards, S., & Cook, F. M. (2009). Parent-child interaction therapy: Adding to the evidence. *International Journal of Speech-Language Pathology, 11*, 61–76.

No comparison of service delivery models

Millard, S. K., Nicholas, A., & Cook, F. M. (2008). Is parent-child interaction therapy effective in reducing stuttering? *Journal of Speech, Language, and Hearing Research, 51*, 636–650.

No comparison of service delivery models

Miller, C. (2002). Learning from each other: Practitioners in school-based support for children with language and communication needs. *Support for Learning, 17*, 187–192.

No comparison of service delivery models

Miller, L. (1989). Classroom-based language intervention. *Language, Speech, and Hearing Services in Schools, 20*, 153–169.

Not a study

Miller, S. A., & Sabatino, D. A. (1977). Evaluating the instructional effectiveness of supplemental special educational materials. *Exceptional Children, 43*, 457–461.

No clinical question

Miller, T. L., & Sabatino, D. A. (1978). An evaluation of the teacher consultant model as an approach to mainstreaming. *Exceptional Children, 45,* 86–91.

Wrong population (too old)

Miller, T. L., & Switzky, H. N. (1979). PL 94-142 and the least restrictive alternative: An interim progress report for educators. *Journal of Education, 161*(3), 60.

Not a study

Mills, P. E., Cole, K. N., Jenkins, J. R., & Dale, P. S. (1998). Effects of differing levels of inclusion on preschoolers with disabilities. *Exceptional Children, 65,* 79–90.

Different curricula

Mineo, B. A., & Goldstein, H. (1990). Generalized learning of receptive and expressive action-object responses by language-delayed preschoolers. *Journal of Speech and Hearing Disorders, 55,* 665–678.

No comparison of service delivery models or dosage

Minor, S. W., Minor, J. W., & Williams, P. P. (1983). A participant modeling procedure to train parents of developmentally disabled infants. *Journal of Psychology, 115,* 107–111.

Speech-language outcomes not separated

Mire, S. P., & Montgomery, J. K. (2009). Early intervening for students with speech sound disorders: Lessons from a school district. *Communication Disorders Quarterly, 30,* 155–

166.

No comparison of service delivery models

Mitchell, P. R., & Mahoney, G. (1995). Team management for young children with motor speech disorders. *Seminars in Speech and Language, 16*, 159–171.

Not a study

Miura, K. (1986). Comparison of amount of speech by physically handicapped children in large or small groups on a ward. *Perceptual and Motor Skills, 62*, 171–177.

Observation under different conditions, not treatment

Miura, K. (1993). Comparison of larger and smaller groups on a ward for physically-handicapped children on interaction in the present game. *Perceptual and Motor Skills, 77*, 200–202.

Observation under different conditions, not treatment

Mobayed, K. L., Collins, B. C., Strangis, D. E., Schuster, J. W., & Hemmeter, M. L. (2000). Teaching parents to employ mand-model procedures to teach their children requesting. *Journal of Early Intervention, 23*, 165–179.

No comparison of service delivery models

Mol, S. E., Bus, A. G., & de Jong, M. T. (2009). Interactive Book reading in early education: A Tool to stimulate print knowledge as well as oral language. *Review of Educational*

Research, 79, 979–1007. doi:10.3102/0034654309332561.

Mixed age population (Pre-K–1st grade)

Mol, S. E., Bus, A. G., de Jong, M. T., & Smeets, D. J. H. (2008). Added value of dialogic parent-child book readings: A meta-analysis. *Early Education and Development, 19,* 7–26.

No comparison of service delivery models

Montgomery, J. K., & Bonderman, I. R. (1989). Serving preschool children with severe phonological disorders. *Language, Speech, and Hearing Services in Schools, 20,* 76–84.

No comparison of service delivery models or dosage

Moody, S. W., Vaughn, S., Hughes, M. T., & Fischer, M. (2000). Reading instruction in the resource room: Set up for failure. *Exceptional Children, 66,* 305–316

Wrong population (school-age)

Mooij, T., & Smeets, E. (2006). Design, development and implementation of inclusive education. *European Educational Research Journal, 5,* 94–109.

Not children with communication disorders

Moore-Brown, B. J., Montgomery, J. K., Bielinski, J., & Shubin, J. (2005). Responsiveness to intervention teaching before testing helps avoid labeling. *Topics in Language Disorders, 25*(2), 148.

Wrong population (4th and 5th grade); Not enough information for comparison of service delivery models

Morgan, A., & Vogel, A. (2006). Intervention for developmental apraxia of speech (protocol) (Art. No. CD006278). *Cochrane Database of Systematic Reviews*. doi:10.1002/14651858.CD006278.

Not a study—protocol

Morgan, A. T., & Vogel, A. P. (2008). Intervention for childhood apraxia of speech (Art. No. CD006278). *Cochrane Database of Systematic Reviews*.

No comparison of service delivery models

Morgan, A. T., & Vogel, A. P. (2008). Intervention for dysarthria associated with acquired brain injury in children and adolescents (Art. No. CD006279). *Cochrane Database of Systematic Reviews*.

No comparison of service delivery models

Morgan, A. T., & Vogel, A. P. (2009). A Cochrane review of treatment for childhood apraxia of speech. *European Journal of Physical and Rehabilitation Medicine, 45,* 103–110.

No comparison of service delivery models; No clinical question

Mori, A. A. (1979). The handicapped child in the mainstream—new roles for the regular educator. *Education, 99,* 243.

Not a study

Morrow, L. M. (1988). Young children's responses to one-to-one story readings in school settings. *Reading Research Quarterly, 23*, 89–107.

Different treatments

Morrow, L. M. (1989). The effect of small group story reading on children's questions and comments. *National Reading Conference Yearbook, 38*, 77–86.

Different treatments

Motsch, H. J., & Riehemann, S. (2008). Effects of 'context-optimization' on the acquisition of grammatical case in children with specific language impairment: An experimental evaluation in the classroom. *International Journal of Language & Communication Disorders, 43*, 683–698. doi:10.1080/13682820701794728.

No comparison of service delivery models; Different treatments

Moxley-Haegert, L., & Serbin, L. A. (1983). Developmental education for parents of delayed infants: Effects on parental motivation and children's development. *Child Development, 54*, 1324–1331.

Different treatments

Mudford, O. C., Martin, N. T., Eikeseth, S., & Bibby, P. (2001). Parent-managed behavioral treatment for preschool children with autism: Some characteristics of UK programs.

Research in Developmental Disabilities, 22, 173–182.

No comparison of service delivery models; No clinical question

Mueller, M., & Leviton, A. (1986). In-home versus clinic-based services for the developmentally disabled child: Who is the primary client—parent or child? *Social Work in Health Care, 11*(3), 75–88.

Not experimental or quasi-experimental design; Not a study; No data

Mulac, A., & Tomlinson, C. N. (1977). Generalization of an operant remediation program for syntax with language delayed children. *Journal of Communication Disorders, 10,* 231–243.

Different treatments

Mulligan, M. (1982). *The effects of massed, distributed, and spaced trial sequencing on severely handicapped students' performance* (Doctoral dissertation). Available from ProQuest Information & Learning. (1983-52830-001)

Dissertation; published as Mulligan et al. (1982); duplicate

Mulligan, M., Lacy, L., & Guess, D. (1982). Effects of massed, distributed and spaced trial sequencing in severely handicapped students' performance. *Journal of the Association for the Severely Handicapped, 7,* 48–61.

Wrong population (too old)

Murphy, M. M. (2007). *Enhancing print knowledge, phonological awareness, and oral language skills with at-risk preschool children in Head Start classrooms* (Doctoral dissertation, University of Nebraska, Lincoln). Retrieved from http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1009&context=cehsgpirw.

No comparison of service delivery models; Different treatments

Musselman, C. R., Wilson, A. K., & Lindsay, P. H. (1988). Effects of early intervention on hearing impaired children. *Exceptional Children, 55*, 222–228.

Treatment not held constant

National Reading Panel. (2000). *Teaching children to read: An Evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the subgroups* (NIH Publication No. 00-4754). Washington, DC: Government Printing Office. Retrieved from www.nationalreadingpanel.org/Publications/subgroups.htm.

No clinical question

Nelson, H. D., Nygren, P., Walker, M., & Panoscha, R. (2006). Screening for speech and language delay in preschool children: Systematic evidence review for the US Preventive Services Task Force. *Pediatrics, 117*, e298–e319.

No clinical question

New, E. (1998). An effective model for a speech and language therapy service in mainstream schools. *International Journal of Language & Communication Disorders, 33,* 602 –607.

Not a study

New Zealand Guidelines Group. (2006). *Traumatic brain injury: Diagnosis, acute management, and rehabilitation*. Retrieved from www.nzgg.org.nz/guidelines/dsp_guideline_popup.cfm?guidelineID=129.

Not a study: Wrong population

New Zealand Ministry of Health. (2001). *New Zealand guidelines for the assessment and treatment of attention-deficit/hyperactivity disorder*. Retrieved from www.moh.govt.nz/moh.nsf/pagesmh/463?Open

No clinical question

Nicholas, A., & Millard, S. K. (1998). The case for early intervention with pre-school dysfluent children. *International Journal of Language & Communication Disorders, 33*(Suppl.), 374–377.

No data—follow up report?

Nicholas, J. G., & Geers, A. E. (2003). Hearing status, language modality, and young children's communicative and linguistic behavior. *Journal of Deaf Studies and Deaf Education, 8,* 422–437.

Different treatments

Nind, M., & Wearmouth, J. (2006). Including children with special educational needs in mainstream classrooms: Implications for pedagogy from a systematic review. *Journal of Research in Special Educational Needs, 6*, 116–124.

No original data

Nind, M., Wearmouth, J., Collins, J., Hall, K., Rix, J., & Sheehy, K. (2004). *A systematic review of pedagogical approaches that can effectively include children with special educational needs in mainstream classrooms with a particular focus on peer group interactive approaches*. London, England: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Wrong population (too old)

Noell, G. H., Roane, H. S., VanDerHeyden, A. M., Whitmarsh, E. L., & Gatti, S. L. (2000). Programming for the generalization of communication to the classroom following assessment and training outside of the classroom. *School Psychology Review*, *29*, 429–442.

No clinical question

Novak, M. A., Olley, J. G., & Kearney, D. S. (1980). Social skills of children with special needs in integrated and separate preschools. In T. Field, S. Goldberg, D. Stern, & A. Sostek (Eds.), *High-risk infants and children: Adult and peer interactions* (pp. 327–346). New York, NY: Academic Press.

Not peer reviewed—book

Oakland, T. (1997). A multi-year home-based program to promote development of young Palestinian children who exhibit developmental delays. *School Psychology International, 18*, 29–39.

No comparison of service delivery models

O'Connor, L., & Schery, T. K. (1986). A comparison of microcomputer-aided and traditional language therapy for developing communication skills in nonoral toddlers. *Journal of Speech and Hearing Disorders, 51,* 356–361.

Different treatments

Odom, S. L., & Diamond, K. E. (1998). Inclusion of young children with special needs in early childhood education: The research base. *Early Childhood Research Quarterly, 13,* 3–25.

No original data

Odom, S. L., Hanson, M. J., Lieber, J., Marquart, J., Sandall, S., Wolery, R., …. Chambers, J. (2001). The costs of preschool inclusion. *Topics in Early Childhood Special Education 21*, 46–55. doi:10.1177/027112140102100104.

Cost analysis; No speech-language outcomes

Odom, S. L., McConnell, S. R., McEvoy, M. A., Peterson, C., Ostrosky, M., Chandler, L. K., … Favazza, P. C. (1999). Relative effects of interventions supporting the social competence

of young children with disabilities. *Topics in Early Childhood Special Education, 19*, 75–91.

Treatment vs. no treatment and different treatments

Odom, S. L., Parrish, T. B., & Hikido, C. (2001). The costs of inclusive and traditional special education preschool services. *Journal of Special Education Leadership, 14*, 33–41.

No speech-language outcomes; cost analysis

Odom, S. L., Vitztum, J., Wolery, R., Lieber, J., Sandall, S., Hanson, M. J., …. Horn, E. (2004). Preschool inclusion in the United States: A review of research from an ecological systems perspective. *Journal of Research in Special Educational Needs, 4*, 17–49.

Not a study; Article of interest

Oliver, P. R., & Scott, T. L. (1981). Group versus individual training in establishing generalization of language skills with severely handicapped individuals. *Mental Retardation, 19*, 285–289.

Wrong population

Onslow, D. J. (1988). The efficacy of intensive group speech therapy for inner city areas. *Child Language Teaching and Therapy, 4*, 26–45.

Mixed age population

Onslow, M. (1992). Choosing a treatment procedure for early stuttering: Issues and future

directions. *Journal of Speech and Hearing Research, 35,* 983–993.

Not a study

Onslow, M., Andrews, C., & Lincoln, M. (1994). A control/experimental trial of an operant treatment for early stuttering. *Journal of Speech and Hearing Research, 37,* 1244–1259.

No comparison of service delivery models or dosage

Onslow, M., Costa, L., Andrews, C., Harrison, E., & Packman, A. (1996). Speech outcomes of a prolonged-speech treatment for stuttering. *Journal of Speech and Hearing Research, 39,* 734–749.

Wrong population (age 10–41); No clinical question

Onslow, M., Costa, L., & Rue, S. (1990). Direct early intervention with stuttering: Some preliminary data. *Journal of Speech and Hearing Disorders, 55,* 405–416.

No comparison of service delivery models

Onslow, M., Menzies, R. G., & Packman, A. (2001). An operant intervention for early stuttering. The development of the Lidcombe Program. *Behavior Modification, 25,* 116–139.

Treatment vs. no treatment; No comparison of service delivery models

Osborne, L. A., McHugh, L., Saunders, J., & Reed, P. (2008). Parenting stress reduces the effectiveness of early teaching interventions for autistic spectrum disorders. *Journal of Autism and Developmental Disorders, 38,* 1092–1103.

Different treatments; No speech-language outcomes

Ospina, M. B., Krebs Seida, J., Clark, B., Karkhaneh, M., Hartling, L., Tjosvold, L., …. Smith, V. (2008). Behavioural and developmental interventions for autism spectrum disorder: A clinical systematic review. *PLoS ONE, 3*(11), e3755. doi:10.1371/journal.pone.0003755.
Comparison of different treatments; Not service delivery models

O'Toole, B. (1988). A community-based rehabilitation programme for pre-school disabled children in Guyana. *International Journal of Rehabilitation Research, 11,* 323–334.
No clinical question

Ozonoff, S., & Cathcart, K. (1998). Effectiveness of a home program intervention for young children with autism. *Journal of Autism and Developmental Disorders, 28,* 25–32.
No comparison of service delivery models

Paediatric Stroke Working Group. (2004). *Stroke in childhood: Clinical guidelines for diagnosis, management, and rehabilitation*. Retrieved from www.rcplondon.ac.uk/pubs/books/childstroke/.
Not a study; no comparison of service delivery models

Pamplona, M. C., Ysunza, A., & Jimenez-Murat, Y. (2001). Mothers of children with cleft palate undergoing speech intervention change communicative interaction. *International Journal of Pediatric Otorhinolaryngology, 59*, 173–179.

No child outcomes, only parent outcomes

Panerai, S., Zingale, M., Trubia, G., Finocchiaro, M., Zuccarello, R., Ferri, R., & Elia, M. (2009). Special education versus inclusive education: The role of the TEACCH Program. *Journal of Autism and Developmental Disorders, 39,* 874–882.

Wrong population (too old)

Parmanto, B., Saptono, A., Murthi, R., Safos, C., & Lathan, C. E. (2008). Secure telemonitoring system for delivering telerehabilitation therapy to enhance children's communication function to home. *Telemedicine Journal and E-Health, 14,* 905–911.

No comparison of service delivery models

Pascoe, M., Stackhouse, J., & Wells, B. (2005). Phonological therapy within a psycholinguistic framework: Promoting change in a child with persisting speech difficulties. *International Journal of Language & Communication Disorders, 40,* 189–220.

No comparison of service delivery models

Peadon, E., Rhys-Jones, B., Bower, C., & Elliott, E. J. (2009). Systematic review of interventions for children with fetal alcohol spectrum disorders. *BMC Pediatrics, 9(* 35). Online publication. doi:10.1186/1471-2431-9-35

No clinical question

Pelletier, J. (2008). *The role of parents, families and caregivers in young children's literacy*

development: A review of programs and research. Toronto, Ontario, Canada: Institute of Child Study, Ontario Institute for Studies in Education, University of Toronto.

No speech-language outcomes

Penn, H., Barreau, S., Butterworth, L., Lloyd, E., Moyles, J., Potter, S., & Sayeed, R. (2004). *What is the impact of out-of-home integrated care and education settings on children aged 0-6 and their parents?* London, England: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

No clinical question

Pennington, L., Goldbart, J., & Marshall, J. (2003). Speech and language therapy to improve the communication skills of children with cerebral palsy (Art. No. CD003466). *Cochrane Database of Systematic Reviews*.

Only two studies have preschool children;

Pennington, L., Goldbart, J., & Marshall, J. (2004). Interaction training for conversational partners of children with cerebral palsy: A systematic review. *International Journal of Language & Communication Disorders, 39*, 151–170.

Duplicate of Cochrane review

Pennington, L., Goldbart, J., & Marshall, J. (2005). Direct speech and language therapy for children with cerebral palsy: Findings from a systematic review. *Developmental*

Medicine and Child Neurology, 47, 57–63.

Included studies that do not compare service delivery models; In all but one study, population too old

Pennington, L., Miller, N., & Robson, S. (2009). Speech therapy for children with dysarthria acquired before three years of age (Art. No. CD006937). *Cochrane Database of Systematic Reviews.*

No comparison of service delivery models

Pennington, L., Thomson, K., James, P., Martin, L., & McNally, R. (2009). Effects of It Takes Two to Talk—The Hanen Program for Parents of Preschool Children With Cerebral Palsy: Findings from an exploratory study. *Journal of Speech, Language, and Hearing Research, 52,* 1121–1138. doi:10.1044/1092-4388(2009/07-0187).

No comparison of service delivery models

Perry, A., Cummings, A., Geier, J. D., Freeman, N. L., Hughes, S., LaRose, L., & Williams, J. (2008). Effectiveness of intensive behavioral intervention in a large, community-based program. *Research in Autism Spectrum Disorders, 2,* 621–642.

No comparison of service delivery models

Peterson, C., Peterson, J., & Scriven, G. (1977). Peer imitation by nonhandicapped and handicapped preschoolers. *Exceptional Children, 43,* 223–224.

No speech-language outcomes

Peterson, N. L., & Haralick, J. G. (1977). Integration of handicapped and nonhandicapped preschoolers: An analysis of play behavior and social interaction. *Education & Training of the Mentally Retarded, 12*, 235–245.

No speech-language outcomes

Peuslow, J. T. (2001). A comparative cost and utility analysis of three models of service delivery for special needs students. *Journal of Education Finance, 27*, 535–565.

No clinical question

Pickstone, C., Goldbart, J., Marshall, J., Rees, A., & Roulstone, S. (2009). A systematic review of environmental interventions to improve child language outcomes for children with or at risk of primary language impairment. *Journal of Research in Special Educational Needs, 9*, 66–79.

No original data

Pierson, D. E., Walker, D. K., & Tivnan, T. (1984). A school-based program from infancy to kindergarten for children and their parents. *Personnel and Guidance Journal, 62*, 448–455.

Not children with communication disorders

Pinder, G. L., & Olswang, L. B. (1995). Development of communicative intent in young children with cerebral palsy: A treatment efficacy study. *Infant-Toddler Intervention: The*

Transdisciplinary Journal, 5, 51–69.

No comparison of service delivery models

Pisterman, S., McGrath, P., Firestone, P., Goodman, J. T., Webster, I., & Mallory, R. (1989). Outcome of parent-mediated treatment of preschoolers with attention deficit disorder with hyperactivity. *Journal of Consulting and Clinical Psychology, 57*, 628–635.

No clinical question

Pistoljevic, N., & Greer, R. D. (2006). The effects of daily intensive tact instruction on preschool students' emission of pure tacts and mands in non-instructional setting. *Journal of Early & Intensive Behavior Intervention, 3*, 103–120.

No clinical question

Plant, K. M., & Sanders, M. R. (2007). Reducing problem behavior during care-giving in families of preschool-aged children with developmental disabilities. *Research in Developmental Disabilities, 28*, 362–385.

Not speech-language outcomes

Polloway, E. A., Cronin, M. E., & Patton, J. R. (1986). The efficacy of group versus one-to-one instruction: A review. *Remedial and Special Education (RASE), 7*(1), 22–30. doi:10.1177/074193258600700106.

No original data

Polychronis, S. C., McDonnell, J., Johnson, J. W., Riesen, T., & Jameson, M. (2004). A comparison of two trial distribution schedules in embedded instruction. *Focus on Autism and Other Developmental Disabilities, 19,* 140–151. doi:10.1177/10883576040190030201.

Wrong population (too old)

Powell, C., & Grantham-McGregor, S. (1989). Home visiting of varying frequency and child development. *Pediatrics, 84,* 157–164.

No children with disabilities

Powell, D. E. (1990). Home-based intervention for preschoolers with emotional disturbances and autism. *Preventing School Failure, 34*(4), 41–45.

Not speech-language disorder

Pretti-Frontczak, K., & Bricker, D. (2001). Use of embedding strategy during daily activities by early childhood education and early childhood special education teachers. *Infant-Toddler Intervention: The Transdisciplinary Journal, 11,* 111–128.

No comparison of service delivery models

Quinn, M., Carr, A., Carroll, L., & O'Sullivan, D. (2007). Parents Plus Programme 1: Evaluation of its effectiveness for pre-school children with developmental disabilities and behavioural problems. *Journal of Applied Research in Intellectual Disabilities, 20,* 345–359.

No comparison of service delivery models

Rafferty, Y., Boettcher, C., & Griffin, K. W. (2001). Benefits and risks of reverse inclusion for preschoolers with and without disabilities: Parents' perspectives. *Journal of Early Intervention, 24*, 266–286. doi:10.1177/105381510102400403.

No speech-language outcomes

Ramey, C. T., & Ramey, S. L. (1998). Early intervention and early experience. *American Psychologist, 53*, 109–120.

Not a study

Ramey, S. L., & Ramey, C. T. (1999). Early experience and early intervention for children "at risk" for developmental delay and mental retardation. *Mental Retardation and Developmental Disabilities Research Reviews, 5*, 1–10.

Not a study

Ramig, P. R., & Wallace, M. L. (1987). Indirect and combined direct-indirect therapy in a dysfluent child. *Journal of Fluency Disorders, 12*, 41–49.

Different treatments

Rao, P. A., Beidel, D. C., & Murray, M. J. (2008). Social skills interventions for children with Asperger's syndrome or high-functioning autism: A review and recommendations. *Journal of Autism and Developmental Disorders, 38*, 353–361.

No comparison of service delivery models

Redditi Hanzlik, J. (1989). The effect of intervention on the free-play experience for mothers and their infants with developmental delay and cerebral palsy. *Physical & Occupational Therapy in Pediatrics, 9*(2), 33–51.

No clinical question

Reed, C. G., & Godden, A. L. (1977). An experimental treatment using verbal punishment with two preschool stutterers. *Journal of Fluency Disorders, 2*, 225–233.

No comparison of service delivery models

Reed, P., Osborne, L. A., & Corness, M. (2007). Brief report: Relative effectiveness of different home-based behavioral approaches to early teaching intervention. *Journal of Autism and Developmental Disorders, 37*, 1815–1821.

No speech-language outcomes

Reed, P., Osborne, L. A., & Corness, M. (2007). The real-world effectiveness of early teaching interventions for children with autism spectrum disorder. *Exceptional Children, 73*, 417–433.

Different treatments

Regan, J. B., & Versaci, A. (1977). A home program for improving voice and speech quality of infants with repaired cleft palate. *Rhode Island Medical Journal, 60*, 384–385, 409.

No comparison of service delivery models

Reichow, B., & Wolery, M. (2009). Comparison of everyday and every-fourth-day probe sessions with the simultaneous prompting procedure. *Topics in Early Childhood Special Education, 29,* 79–89.

Rate of feedback not treatment

Reichow, B., & Wolery, M. (2009). Comprehensive synthesis of early intensive behavioral interventions for young children with autism based on the UCLA Young Autism Project model. *Journal of Autism and Developmental Disorders, 39,* 23–41.

Studies comparing intensities did not examine speech or language outcomes.

Remington, B., Hastings, R. P., Kovshoff, H., degli Espinosa, F., Jahr, E., Brown, T., & Ward, N. (2007). Early intensive behavioral intervention: Outcomes for children with autism and their parents after two years. *American Journal on Mental Retardation, 112,* 418–438.

Different treatments

Resnick, M. B., Eyler, F. D., Nelson, R. M., Eitzman, D. V., & Bucciarelli, R. L. (1987). Developmental intervention for low birth weight infants: Improved early development outcome. *Pediatrics, 80,* 68–74.

No comparison of service delivery models; More treatments vs. no treatment

Reynolds, A. L., Vick, J. L., & Haak, N. J. (2009). Telehealth applications in speech-language pathology: A modified narrative review. *Journal of Telemedicine and Telecare ,15*, 310–316. doi:1972076910.1258/jtt.2009.081215.

Mixed population

Richardson, E., Oestereicher, M. H., Bialer, I., & Winsberg, B. G. (1975). Teaching beginning reading skills to retarded children in community classrooms: A programmatic case study. *Mental Retardation, 13*, 11–15.

No comparison of service delivery models

Rickards, A. L., Walstab, J. E., Wright-Rossi, R. A., Simpson, J., & Reddihough, D. S. (2007). A randomized, controlled trial of a home-based intervention program for children with autism and developmental delay. *Journal of Developmental and Behavioral Pediatrics, 28*, 308–316.

No speech-language outcomes

Rickards, A. L., Walstab, J. E., Wright-Rossi, R. A., Simpson, J., & Reddihough, D. S. (2009). One-year follow-up of the outcome of a randomized controlled trial of a home-based intervention programme for children with autism and developmental delay and their families. *Child: Care, Health, and Development, 35*, 593–602.

No speech-language outcomes

Riley, G., & Riley, J. (2000). A revised component model for diagnosing and treating children

who stutter. *Contemporary Issues in Communication Science and Disorders, 27,* 188–199.

No comparison of service delivery models; Wrong population

Rincover, A., & Koegel, R. L. (1977). Classroom treatment of autistic children: II. Individualized instruction in a group. *Journal of Abnormal Child Psychology, 5,* 113–126, 177.

No clinical question

Rinehart, N. J., Brereton, A. V., Tonge, B. J., & King, N. (2003). Autism: A parent-based early intervention. *Australian Journal of Psychology, 55,* 208.

No comparison of service delivery models

Rittenhouse, R. K., White, K., Lowitzer, C., & Shisler, L. (1990). The costs and benefits of providing early intervention to very young, severely hearing-impaired children in the United States: The conceptual outline of a longitudinal research study and some preliminary findings. *British Journal of Disorders of Communication, 25,* 195–208.

No data

Rix, J., Hall, K., Nind, M., Sheehy, K., & Wearmouth, J. (2006). *A systematic review of interactions in pedagogical approaches with reported outcomes for the academic and social inclusion of pupils with special educational needs.* London, England: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Wrong population (too old)

Rix, J., Hall, K., Nind, M., Sheehy, K., & Wearmouth, J. (2009). What pedagogical approaches can effectively include children with special educational needs in mainstream classrooms? A systematic literature review. *Support for Learning, 24*, 86–94.
No original data; Wrong population (too old)

Roberts, J. E., Jurgens, J., & Burchinal, M. (2005). The role of home literacy practices in preschool children's language and emergent literacy skills. *Journal of Speech, Language, and Hearing Research, 48,* 345–359. doi:10.1044/1092-4388(2005/024).
Not children with communication disorders

Roberts, J. E., Prizant, B., & McWilliam, R. A. (1995). Out-of-class versus in-class service delivery in language intervention: Effects on communication interactions with young children. *American Journal of Speech-Language Pathology, 4*(2), 87–94.
Article states that you cannot discern the efficacy of the two different models

Roberts, J. M. (2003). *A review of the research to identify the most effective models of best practice in the management of children with autism spectrum disorder*. Sydney, Australia: Centre for Developmental Disabilities Studies. Retrieved from www.aspect.org.au/resources/ASDreview.pdf.
No comparison of service delivery models; Treatment comparison

Rocha, M. L., Schreibman, L., & Stahmer, A. C. (2007). Effectiveness of training parents to teach joint attention in children with autism. *Journal of Early Intervention, 29*, 154–173.

No comparison of service delivery models

Rodriguez, E. T., Tamis-LeMonda, C. S., Spellmann, M. E., Pan, B. A., Raikes, H., … Luze, G. (2009). The formative role of home literacy experiences across the first three years of life in children from low-income families. *Journal of Applied Developmental Psychology, 30*, 677–694. doi:10.1016/j.appdev.2009.01.003.

No comparison of service delivery models; Not children with communication disorders

Rogers, S. J. (1998). Empirically supported comprehensive treatments for young children with autism. *Journal of Clinical Child Psychology, 27*, 168–179.

No comparison of service delivery models

Rogers, S. J., Hayden, D., Hepburn, S., Charlifue-Smith, R., Hall, T., & Hayes, A. (2006). Teaching young nonverbal children with autism useful speech: A pilot study of the Denver model and prompt interventions. *Journal of Autism and Developmental Disorders, 36*, 1007–1024.

No comparison of service delivery models

Rogers-Warren, A. K., Ruggles, T. R., Peterson, N. L., & Cooper, A. Y. (1981). Playing and learning together: Patterns of social interaction in handicapped and nonhandicapped children. *Journal of Early Intervention, 3*, 56–63. doi:10.1177/105381518100300109.

No comparison of service delivery models

Roth, F. P., Troia, G. A., Worthington, C. K., & Handy, D. (2006). Promoting awareness of sounds in speech (pass): The effects of intervention and stimulus characteristics on the blending performance of preschool children with communication impairments. *Learning Disability Quarterly, 29*, 67–88.

No comparison of service delivery models or dosage

Roulstone, S., Glogowska, M., Enderby, P., & Peters, T. J. (1999). Issues to consider in the evaluation of speech and language therapy for preschool children. *Child: Care, Health, and Development, 25*, 141–155.

Not a study

Rousseau, I., Packman, A., Onslow, M., Harrison, E., & Jones, M. (2007). An investigation of language and phonological development and the responsiveness of preschool age children to the Lidcombe Program. *Journal of Communication Disorders, 40*, 382–397.

Information provided cannot answer clinical question; Article of interest

Rule, S., Stowitschek, J. J., Innocenti, M., & Striefel, S. (1987). The Social Integration Program: An analysis of the effects of mainstreaming handicapped children into day care centers. *Education and Treatment of Children, 10*, 175–192.

No indication that treatments were consistent

Ruscello, D. M., Cartwright, L. R., Haines, K. B., & Shuster, L. I. (1993). The use of different service delivery models for children with phonological disorders. *Journal of Communication Disorders, 26,* 193–203.

Seems like different treatments through Speech Viewer

Russell, D., & Matson, J. (1998). Fathers as intervention agents for their children with developmental disabilities. *Child & Family Behavior Therapy, 20*(3), 29–49.

No comparison of service delivery models

Ryan, B. P., & Van Kirk, B. (1983). Programmed stuttering therapy for children: Comparison of four establishment programs. *Journal of Fluency Disorders, 8,* 291–321.

Wrong population

Saenger, G., Stimson, C. W., & Hand, J. (1979). Delivery of care for severely retarded children: A follow-up study. *International Journal of Rehabilitation Research, 2,* 321–332.

No clinical question; Wrong population

Salazar, V. R. (2008). *Effects of a specialized early intervention for children with severe language impairment* (Doctoral dissertation, The University of Texas Southwestern Medical Center at Dallas). Retrieved from http://edissertations.library.swmed.edu/pdf/SalazarV091808/SalazarVanessa.pdf.

Wrong population (too old)

Sallows, G. O., & Graupner, T. D. (2005). Intensive behavioral treatment for children with autism: Four-year outcome and predictors. *American Journal on Mental Retardation, 110*, 417–438.

Cannot make comparison of dosage because children not separated by duration, total amount of treatment, etc. Authors indicated that both groups (unexpectedly) received similar amounts of treatment.

Salt, J., Sellars, V., Shemilt, J., Boyd, S., Coulson, T., & McCool, S. (2001). The Scottish Centre for Autism Preschool Treatment Programme. I: A developmental approach to early intervention. *Autism, 5*, 362–373.

Not a study

Saltuklaroglu, T., & Kalinowski, J. (2005). How effective is therapy for childhood stuttering? Dissecting and reinterpreting the evidence in light of spontaneous recovery rates. *International Journal of Language& Communication Disorders, 40*, 359–374.

Not a study

Salzberg, C. L., & Villani, T. V. (1983). Speech training by parents of Down syndrome toddlers: Generalization across settings and instructional contexts. *American Journal of Mental Deficiency, 87*, 403–413.

No comparison of service delivery models or dosage

Sandow, S. A., Clarke, A. D., Cox, M. V., & Stewart, F. L. (1981). Home intervention with

parents of severely subnormal pre-school children: A final report. *Child: Care, Health, and Development, 7*, 135–144.

No speech-language outcomes

Sansone, C. D. (2002). *A comparison of the effects of integrating special education preschoolers with their nondisabled peers* (Master's thesis). Retrieved from www.rowan.edu/library/rowan_theses/RU2002/0129COMP.pdf.

Not experimental

Sansosti, F. J., & Powell-Smith, K. A. (2008). Using computer-presented social stories and video models to increase the social communication skills of children with high-functioning autism spectrum disorders. *Journal of Positive Behavior Interventions, 10*, 162–178.

No comparison of service delivery models

Scahill, L., Aman, M. G., McDougle, C. J., Arnold, L. E., McCracken, J. T., Handen, B., … Sukhodolsky, D. (2009). Trial design challenges when combining medication and parent training in children with pervasive developmental disorders. *Journal of Autism and Developmental Disorders, 39*, 720–729.

No clinical question

Schafer, D. S., Spalding, J. B., & Bell, A. P. (1987). Potential predictors of child progress as measured by the early intervention developmental profile. *Journal of Early Intervention 11*, 106–117. doi:10.1177/105381518701100202.

Treatment not held constant

Scherer, N. J., D'Antonio, L. L., & McGahey, H. (2008). Early intervention for speech impairment in children with cleft palate. *Cleft Palate-Craniofacial Journal, 45,* 18–31.

No comparison of service delivery models

Schetz, K. F. (1989). Computer-aided language/concept enrichment in kindergarten consultation program model. *Language, Speech, and Hearing Services in Schools, 20,* 2–10.

Wrong population (kindergarten)

Schirmer, B. R., & McGough, S. M. (2005). Teaching reading to children who are deaf: Do the conclusions of the National Reading Panel apply? *Review of Educational Research, 75*, 83–117.

No comparison of service delivery models

Schleien, S. J., Mustonen, T., & Rynders, J. E. (1995). Participation of children with autism and nondisabled peers in a cooperatively structured community art program. *Journal of Autism and Developmental Disorders, 25*, 397–413.

No comparison of service delivery models; No clinical question

Schneider, B. H., & Leroux, J. (1994). Education environment for the pupil with behavioral disorders: A 'best evidence' synthesis. *Behavioral Disorders, 19,* 192 –205.

Not children with communication disorders

Scholom, A., Schiff, G., Swerdlik, M. E., & Knight, J. (1981). A three year study of learning disabled children in mainstreamed and self contained classes. *Education, 101*, 231–238.

Wrong population (too old)

Schulte, A. C., Osborne, S., & McKinney, J. (1990). Academic outcomes for students with learning disabilities in consultation and resource programs. *Exceptional Children, 57*, 162–172.

Wrong population (1st through 5th grade); No speech-language pathology

Schwartz, I. S., Anderson, S. R., & Halle, J. W. (1989). Training teachers to use naturalistic time delay: Effects on teacher behavior and on the language use of students. *Journal of the Association for Persons With Severe Handicaps, 14*, 48–57.

Wrong population (age 8.1–9.5); No clinical question

Schwartz, I. S., Sandall, S. R., McBride, B. J., & Boulware, G.-L. (2004). Project Data (Developmentally Appropriate Treatment for Autism): An inclusive school-based approach to educating young children with autism. *Topics in Early Childhood Special Education 24*, 156–168. doi:10.1177/02711214040240030301.

No comparison of service delivery models

Scottish Intercollegiate Guidelines Network. (2007). *Assessment, diagnosis and clinical interventions for children and young people with autism spectrum disorders: A national*

clinical guideline. (SIGN Publication No. 98). Edinburgh: Scottish Intercollegiate Guidelines Network.

No clinical question

Scruggs, T. E., Mastropieri, M. A., Cook, S. B., & Escobar, C. (1986). Early intervention for children with conduct disorders: A quantitative synthesis of single-subject research. *Behavioral Disorders, 11*, 260–271.

Not children with communication disorders

Seifert, H., & Schwarz, I. (1991). Treatment effectiveness of large group basic concept instruction with Head Start students. *Language, Speech, and Hearing Services in Schools, 22*, 60–64.

No comparison of service delivery models or dosage

Seung, H. K., Ashwell, S., Elder, J. H., & Valcante, G. (2006). Verbal communication outcomes in children with autism after in-home father training. *Journal of Intellectual Disability Research, 50*(Pt. 2), 139–150.

No comparison of service delivery models

Sevcik, R. A., Romski, M. A., Watkins, R. V., & Deffebach, K. P. (1995). Adult partner-augmented communication input to youth with mental retardation using the System for Augmenting Language (SAL). *Journal of Speech and Hearing Research, 38,* 902–912.

Wrong population (adolescents); In school-age systematic review, rejected by committee:

No clinical question; Age

Shafer, M. S., Egel, A. L., & Neef, N. A. (1984). Training mildly handicapped peers to facilitate changes in the social interaction skills of autistic children. *Journal of Applied Behavior Analysis, 17*, 461–476.

No comparison of service delivery models

Sharp, S. (2006). Knowledge update: Complex needs and hearing disorders. *NLH Specialist Library for ENT and Audiology.* Retrieved from: http://www.library.nhs.uk/ENT/

No clinical question

Sharry, J., Guerin, S., Griffin, C., & Drumm, M. (2005). An evaluation of the parents plus early years programme: A video-based early intervention for parents of pre-school children with behavioural and developmental difficulties. *Clinical Child Psychology and Psychiatry, 10*, 319–336.

No speech-language outcomes

Sheehy, K., & Rix, J. (2009). *A systematic review of whole class, subject-based pedagogies with reported outcomes for the academic and social inclusion of pupils with special educational needs*. London, England: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

Wrong population (too old)

Sheinkopf, S. J., & Siegel, B. (1998). Home-based behavioral treatment of young children with autism. *Journal of Autism and Developmental Disorders, 28,* 15–23.

No speech-language outcomes

Shelton, R. L., Johnson, A. F., Ruscello, D. M., & Arndt, W. B. (1978). Assessment of parent-administered listening training for preschool children with articulation deficits. *Journal of Speech and Hearing Disorders, 43,* 242–254.

No comparison of service delivery models; Different treatments

Sherman, J., Barker, P., Lorimer, P., Swinson, R., & Factor, D. C. (1988). Treatment of autistic children: Relative effectiveness of residential, out-patient and home-based interventions. *Child Psychiatry and Human Development, 19,* 109–125.

Treatment not held constant; Mixed age population; Speech-language outcomes not separated

Shin, J. Y., Nhan, N. V., Lee, S. B., Crittenden, K. S., Flory, M., & Hong, H. T. D. (2009). The effects of a home-based intervention for young children with intellectual disabilities in Vietnam. *Journal of Intellectual Disability Research, 53,* 339–352.

Treatment vs. no treatment

Shonkoff, J. P., Krauss, M. W., Hauser-Cram, P., & Upshur, C. C. (1988). Early intervention efficacy research: What have we learned and where do we go from here? *Topics in Early Childhood Special Education, 8,* 81–93. doi:10.1177/027112148800800109.

Not a study

Shriberg, L. D., & Kwiatkowski, J. (1987). A retrospective study of spontaneous generalization in speech-delayed children. *Language, Speech, and Hearing Services in Schools, 18,* 144–157.

Treatment not held constant

Sicotte, C., Lehoux, P., Fortier-Blanc, J., & Leblanc, Y. (2003). Feasibility and outcome evaluation of a telemedicine application in speech-language pathology. *Journal of Telemedicine and Telecare, 9,* 253–258. doi:10.1258/135763303769211256.

No comparison of service delivery models

Silliman, E. R., Ford, C. S., Beasman, J., & Evans, D. (1999). An inclusion model for children with language learning disabilities: Building classroom partnerships. *Topics in Language Disorders, 19*(3), 1–18.

Not a study

Simeonsson, R. J., Cooper, D. H., & Scheiner, A. P. (1982). A review and analysis of the effectiveness of early intervention programs. *Pediatrics, 69,* 635–641.

No clinical question

Simon, C. S. (1987). Out of the broom closet and into the classroom: The emerging SLP. *Communication Disorders Quarterly, 11,* 41–66. doi:10.1177/152574018701100104.

Not a study

Smith, A. E., & Camarata, S. (1999). Using teacher-implemented instruction to increase language intelligibility of children with autism. *Journal of Positive Behavior Interventions, 1*, 141–151.

No comparison of service delivery models

Smith, T. (1999). Outcome of early intervention for children with autism. *Clinical Psychology: Science and Practice, 6,* 33–49.

No comparison of service delivery models

Smith, T., Buch, G. A., & Gamby, T. E. (2000). Parent-directed, intensive early intervention for children with pervasive developmental disorder. *Research in Developmental Disabilities, 21*, 297–309.

No data comparing service delivery models

Smith, T., Eikeseth, S., Klevstrand, M., & Lovaas, O. I. (1997). Intensive behavioral treatment for preschoolers with severe mental retardations and pervasive developmental disorder. *American Journal on Mental Retardation, 102*, 238–249. doi:10.1352/0895-8017.

Insufficient data to determine duration/intensity

Smith, T., Groen, A. D., & Wynn, J. W. (2000). 'Randomized trial of intensive early intervention for children with pervasive developmental disorder': Erratum. *American Journal on*

Mental Retardation, 105(6), 269–285.

Erratum

Smith, T., Groen, A. D., & Wynn, J. W. (2001). 'Randomized trial of intensive early intervention for children with pervasive developmental disorder': Erratum. *American Journal on Mental Retardation, 106*(3), 269–285.

Erratum

Snell, M. E., Chen, L.-Y., & Hoover, K. (2006). Teaching augmentative and alternative communication to students with severe disabilities: A review of intervention research 1997-2003. *Research and Practice for Persons with Severe Disabilities, 31,* 203–214.

Mixed age population (age 0–21)

Snyder, L., Apolloni, T., & Cooke, T. P. (1977). Integrated settings at the early childhood level: The role of nonretarded peers. *Exceptional Children, 43*, 262–266.

Not a study

Soderhan, A. K., & Whiren, A. P. (1985). Mainstreaming the young hearing-impaired child: An intensive study. *Journal of the American Deafness and Rehabilitation Association, 18*(3), 7–14.

No clinical question

Sokol, N. G., Kern, L., Arbolino, L. A., Thomas, L. B., & DuPaul, G. J. (2009). A summary of

home-based functional analysis data for young children with or at risk for attention-deficit/hyperactivity disorder. *Early Childhood Services: An Interdisciplinary Journal of Effectiveness, 3*, 127–142.

No clinical question; Not children with communication disorders

Solomon, R., Necheles, J., Ferch, C., & Bruckman, D. (2007). Pilot study of a parent training program for young children with autism—the Play Project Home Consultation Program. *Autism, 11*, 205–224. doi:10.1177/1362361307076842.

No comparison of service delivery models

Sosne, J. B., Handleman, J. S., & Harris, S. L. (1979). Teaching spontaneous-functional speech to autistic-type children. *Mental Retardation, 17*, 241–245.

Not a study

Sparks, S. N. (1989). Assessment and intervention with at-risk infants and toddlers: Guidelines for the speech-language pathologist. *Topics in Language Disorders, 10*(1), 43–56.

Not a study

Spittle, A. J., Orton, J., Doyle, L. W., & Boyd, R. (2007). Early developmental intervention programs post hospital discharge to prevent motor and cognitive impairments in preterm infants (Art. No. CD005495). *Cochrane Database of Systematic Reviews*.

No speech-language outcomes

Spradlin, J. E., & Siegel, G. M. (1982). Language training in natural and clinical environments. *Journal of Speech and Hearing Disorders, 47,* 2–6.

Not a study

Spreckley, M., & Boyd, R. (2009). Efficacy of applied behavioral intervention in preschool children with autism for improving cognitive, language, and adaptive behavior: A systematic review and meta-analysis. *The Journal of Pediatrics, 154*, 338–344.

No comparison of service delivery models

Stahmer, A. C., & Ingersoll, B. (2004). Inclusive programming for toddlers with autism spectrum disorders: Outcomes from the Children's Toddler School. *Journal of Positive Behavior Interventions, 6*, 67–82.

No comparison of service delivery models

Stark, C., Lees, R., Black, C., & Waugh, N. (2004). Altered auditory feedback treatments for stuttering in childhood and adolescence (protocol) (Art. No. CD004859). *Cochrane Database of Systematic Reviews*. doi:10.1002/14651858.CD004859.

Not a study—protocol

Stathopulu, E., Zwi, M., & York, A. (2003). Parent-training intervention in school-aged children with autistic spectrum disorders (protocol) (Art. No. CD004255). *Cochrane Database of Systematic Reviews*. doi:10.1002/14651858.CD004255.

Not a study—protocol

Stern, L. M., Connell, T. M., Lee, M., & Greenwood, G. (1995). The Adelaide preschool language unit: Results of follow-up. *Journal of Paediatrics and Child Health, 31*, 207–212.

No comparison of service delivery models

Stevenson, P., Bax, M., & Stevenson, J. (1982). The evaluation of home based speech therapy for language delayed pre-school children in an inner city area. *British Journal of Disorders of Communication, 17*, 141–148.

Treatment vs. no treatment; No comparison of service delivery models

Stocker, B., & Gerstman, L. J. (1983). A comparison of the probe technique and conventional therapy for young stutterers. *Journal of Fluency Disorders, 8*, 331–339.

Wrong population (too old); No clinical question

The St. Petersburg-USA Orphanage Research Team. (2008). The effects of early social-emotional and relationship experience on the development of young orphanage children. *Monographs of the Society for Research in Child Development, 73*(3), 1–262, 294–265.

.

No clinical question

Strain, P. S., Shores, R. E., & Timm, M. A. (1977). Effects of peer social initiations on the behavior of withdrawn preschool children. *Journal of Applied Behavior Analysis, 10*,

289–298.

No clinical question

Strand, E. (1995). Treatment of motor speech disorders in children. *Seminars in Speech and Language, 16,* 126–139.

No clinical question; Not a study

Strand, E. A., Stoeckel, R., & Baas, B. (2006). Treatment of severe childhood apraxia of speech: A treatment efficacy study. *Journal of Medical Speech-Language Pathology, 14*, 297–307.

No comparison of service delivery models

Strayhorn, J. M., & Weidman, C. S. (1989). Reduction of attention deficit and internalizing symptoms in preschoolers through parent-child interaction training. *Journal of the American Academy of Child & Adolescent Psychiatry, 28,* 888–896.

No clinical question; No speech-language outcomes

Strayhorn, J. M., & Weidman, C. S. (1991). Follow-up one year after parent-child interaction training: Effects on behavior of preschool children. *Journal of the American Academy of Child & Adolescent Psychiatry, 30,* 138–143.

No clinical question; No speech-language outcomes

Swanson, H. L. (1999). Reading research for students with LD: A meta-analysis of intervention

outcomes. *Journal of Learning Disabilities, 32,* 504–532.

Wrong population (too old); No clinical question

Swanson, H. L., & Hoskyn, M. (1998). Experimental intervention research on students with learning disabilities: A meta-analysis of treatment outcomes. *Review of Educational Research, 68,* 277–321.

Wrong population (too old); No clinical question

Sweet, M. A., & Appelbaum, M. I. (2004). Is home visiting an effective strategy? A meta-analytic review of home visiting programs for families with young children. *Child Development, 75,* 1435–1456.

No speech-language outcomes

Sylva, K., Scott, S., Totsika, V., Ereky-Stevens, K., & Crook, C. (2008). Training parents to help their children read: A randomized control trial. *British Journal of Educational Psychology, 78,* 435–455. doi:10.1348/000709907x255718.

No comparison of service delivery models; Mixed ages; Not children with communication disorders

Tamanaha, A. C., Perissinoto, J., & Chiari, B. M. (2008). Development of autistic children based on maternal responses to the autism behavior checklist. *Pro Fono: Revista de Actualizacao Cientifica, 20,* 165–170.

Mixed age population; No explanation of treatment; Indirect vs. direct invention, indirect

intervention; Unclear if speech-language pathology involved with direct intervention

Tannock, R., Girolametto, L., & Siegel, L. S. (1992). Language intervention with children who have developmental delays: Effects of an interactive approach. *American Journal on Mental Retardation, 97*, 145–160.

Treatment vs. no treatment

Taubman, M., Brierley, S., Wishner, J., Baker, D., McEachin, J., & Leaf, R. B. (2001). The effectiveness of a group discrete trial instructional approach for preschoolers with developmental disabilities. *Research in Developmental Disabilities, 22,* 205–219.

No comparison of service delivery models

Taylor, C., White, K. R., & Pezzino, J. (1984). Cost-effectiveness analysis of full-day versus half-day intervention programs for handicapped preschoolers. *Journal of Early Intervention, 9,* 76–85. doi:10.1177/105381518400900109.

Different amounts of treatment not indicated and not reflective of half-day vs. full day

Taylor, M. J., White, K. R., & Kusmierek, A. (1993). The cost-effectiveness of increasing hours per week of early intervention services for young children with disabilities. *Early Education and Development, 4*, 238–255.

Treatment not held constant

Thomas, H., Camiletti, Y., Cava, M., Feldman, L., Underwood, J., & Wade, K. (1999).

Effectiveness of parenting groups with professional involvement in improving parent and child outcomes. Hamilton, ON, Canada: Ontario Ministry of Health, Region of Hamilton-Wentworth, Social and Public Health Services Division.

No comparison of service delivery models; Not children with communication disorders

Throneburg, R. N., Calvert, L. K., Sturm, J. J., Paramboukas, A. A., & Paul, P. J. (2000). A comparison of service delivery models: Effects on curricular vocabulary skills in the school setting. *American Journal of Speech-Language Pathology, 9,* 10–20.

Wrong population (kindergarten–3rd grade)

Torgesen, J. K., Wagner, R. K., Rashotte, C. A., Rose, E., Lindamood, P., Conway, T., & Garvan, C. (1999). Preventing reading failure in young children with phonological processing disabilities: Group and individual responses to instruction. *Journal of Educational Psychology, 91,* 579–593. doi:10.1037/0022-0663.91.4.579.

Wrong population (school-age)

Tsao, L.-L., Odom, S. L., Buysse, V., Skinner, M., West, T., & Vitztum-Komanecki, J. (2008). Social participation of children with disabilities in inclusive preschool programs: Program typology and ecological features. *Exceptionality, 16,* 125–140.

Mixed population; Discussion dictates communication should also be studied

Tunmer, W. E., & Hoover, W. A. (1993). Phonological recoding skill and beginning reading. *Reading and Writing: An Interdisciplinary Journal, 5,* 161–179.

No clinical question

Turnbull, K. P., Anthony, A. B., Justice, L., & Bowles, R. (2009). Preschoolers' exposure to language stimulation in classrooms serving at-risk children: The contribution of group size and activity context. *Early Education and Development, 20*, 53–79. doi:10.1080/10409280802206601.

No comparison of service delivery models

Tyler, A. A., Edwards, M. L., & Saxman, J. H. (1987). Clinical application of two phonologically based treatment procedures. *Journal of Speech and Hearing Disorders, 52*, 393–409.

No comparison of service delivery models or dosage

Tyler, A. A., & Sandoval, K. T. (1994). Preschoolers with phonological and language disorders treating different linguistic domains. *Language, Speech, and Hearing Services in Schools, 25*, 215–234.

No comparison of service delivery models or dosage

Udaka, I. J. (2009). *Cross-age peer tutoring in dialogic reading: Effects on the language development* (Doctoral dissertation, University of Massachusetts – Amherst). Retrieved from http://scholarworks.umass.edu/cgi/viewcontent.cgi?article=1132&context=open_access_dissertations.

No comparison of service delivery models

Valdez-Menchaca, M. C., & Whitehurst, G. J. (1992). Accelerating language development through picture book reading: A systematic extension to Mexican day care. *Developmental Psychology, 28*, 1106–1114.

Different treatments

Valk, J. E. (2003). *Teaching imitation skills to preschool children with severe disabilities: The effects of embedding constant time delay within a small group activity* (Doctoral dissertation, The Ohio State University). Retrieved from http://etd.ohiolink.edu/send-pdf.cgi/Valk%20Jennie%20Elise.pdf?osu1060698087.

No comparison of service delivery models

van Bysterveldt, A. K., Gillon, G. T., & Moran, C. (2006). Enhancing phonological awareness and letter knowledge in preschool children with Down syndrome. *International Journal of Disability, Development and Education, 53*, 301–329.

No comparison of service delivery models or dosage

van Kleeck, A., & Beckley-McCall, A. (2002). A comparison of mothers' individual and simultaneous book sharing with preschool siblings: An exploratory study of five families. *American Journal of Speech-Language Pathology, 11*, 175–189. doi:10.1044/1058/0360(2002/017).

No comparison of service delivery models

van Kleeck, A., Gillam, R. B., & McFadden, T. U. (1998).A study of classroom-based phonological awareness training for preschoolers with speech and/or language disorders. *American Journal of Speech-Language Pathology, 7*(3), 65–76.

No comparison of service delivery models

van Kleeck, A., Vander Woude, J., & Hammett, L. (2006). Fostering literal and inferential language skills in Head Start preschoolers with language impairment using scripted book-sharing discussions. *American Journal of Speech-Language Pathology, 15,* 85–95. doi:10.1044/1058-0360(2006/009).

No comparison of service delivery models

Vandell, D. L., Anderson, L. D., Ehrhardt, G., & Wilson, K. S. (1982). Integrating hearing and deaf preschoolers: An attempt to enhance hearing children's interactions with deaf peers. *Child Development, 53,* 1354–1363.

Different interventions

Vanderveen, J. A., Bassler, D., Robertson, C. M., & Kirpalani, H. (2009). Early interventions involving parents to improve neurodevelopmental outcomes of premature infants: A meta-analysis. *Journal of Perinatology, 29,* 343–351.

Treatment vs. no treatment

Vincent, L. J., Brown, L., & Getz-Sheftel, M. (1981). Integrating handicapped and typical

children during the preschool years: The definition of best educational practice. *Topics in Early Childhood Special Education, 1*, 17–24.

Not a study

Vismara, L. A., Colombi, C., & Rogers, S. J. (2009). Can one hour per week of therapy lead to lasting changes in young children with autism? *Autism, 13*, 93–115.

No comparison of service delivery models

Vockell, E. L., & Mihail, T. (1993). Instructional principles behind computerized instruction for students with exceptionalities. *Teaching Exceptional Children, 25*(3), 38–43.

No clinical question

Vogler, S. D., Davidson, A. J., Crane, L. A., Steiner, J. F., & Brown, J. M. (2002). Can paraprofessional home visitation enhance early intervention service delivery? *Journal of Developmental and Behavioral Pediatrics, 23*, 208–216.

No speech-language outcomes

Volpe, R. J., DuPaul, G. J., Jitendra, A. K., & Tresco, K. E. (2009). Consultation-based academic interventions for children with attention deficit hyperactivity disorder: Effects on reading and mathematics outcomes at 1-year follow-up. *School Psychology Review, 38*, 5–13.

Wrong population (too old)

Vorgraft, Y., Farbstein, I., Spiegel, R., & Apter, A. (2007). Retrospective evaluation of an

intensive method of treatment for children with pervasive developmental disorder. *Autism: The International Journal of Research & Practice, 11*, 413–424.

No comparison of service delivery models

Wacker, D. P., Berg, W. K., Harding, J. W., Barretto, A., Rankin, B., & Ganzer, J. (2005). Treatment effectiveness, stimulus generalization, and acceptability to parents of functional communication training. *Educational Psychology, 25*, 233–256.

No speech-language outcomes

Wade, K., Cava, M., Douglas, C., Feldman, L., Irving, H., O'Brien, M. A.,…Thomas, H. (1999). *A systematic review of the effectiveness of peer/paraprofessional 1: Interventions targeted toward mothers (parents) of 0-6 year old children in promoting positive maternal (parental) and/or child health/developmental outcomes*. Effective Public Health Practice Project. Ontario Public Health Research, Education & Development Program, Ontario Ministry of Health, Region of Hamilton-Wentworth, Social and Public Health Services Division.

No comparison of service delivery models

Wagner, M. M., & Clayton, S. L. (1999). The parents as teachers program: Results from two demonstrations. *Future of Children, 9*, 91–115.

No comparison of service delivery models; "At risk" criteria to enter study, not speech-language disorders

Waite, M. C., Cahill, L. M., Theodoros, D. G., Busuttin, S., & Russell, T. G. (2006). A pilot study of online assessment of childhood speech disorders. *Journal of Telemedicine and Telecare, 12*(Suppl. 3), 92–94. doi:10.1258/135763306779380048.

No comparison of service delivery models; Diagnosis not treatment

Walker, G. (2008). Constant and progressive time delay procedures for teaching children with autism: A literature review. *Journal of Autism and Developmental Disorders, 38*, 261–275.

No comparison of service delivery models; Different treatments

Wang, P. (2008). Effects of a parent training program on the interactive skills of parents of children with autism in China. *Journal of Policy and Practice in Intellectual Disabilities, 5*, 96–104.

Treatment vs. no treatment

Ward, S. (1999). An investigation into the effectiveness of an early intervention method for delayed language development in young children. *International Journal of Language & Communication Disorders, 34*, 243–264.

Treatment vs. no treatment

Warfield, M. E. (1995). The cost-effectiveness of home visiting versus group services in early intervention. *Journal of Early Intervention 19*, 130–148. doi:10.1177/105381519501900207.

No speech-language outcomes

Warren, S. F. (1992). Facilitating basic vocabulary acquisition with milieu teaching procedures. *Journal of Early Intervention, 16,* 235–251.

No comparison of service delivery models or dosage

Warren, S. F., Fey, M. E., Finestack, L. H., Brady, N. C., Bredin-Oja, S. L., & Fleming, K. K. (2008). A randomized trial of longitudinal effects of low-intensity responsivity education/prelinguistic milieu teaching. *Journal of Speech, Language, and Hearing Research, 51,* 451–470.

No comparison of service delivery models

Warren, S. F., Fey, M. E., & Yoder, P. J. (2007). Differential treatment intensity research: A missing link to creating optimally effective communication interventions. *Mental Retardation and Developmental Disabilities Research Reviews, 13,* 70–77.

Not a study

Warren, S. F., & Gazdag, G. (1990). Facilitating early language development with milieu intervention procedures. *Journal of Early Intervention, 14,* 62–86.

No comparison of service delivery models or dosage

Warren, S. F., & Kaiser, A. P. (1986). Incidental language teaching: A critical review. *Journal of Speech and Hearing Disorders, 51,* 291–299.

No comparison of service delivery models

Warren, S. F., McQuarter, R. J., & Rogers-Warren, A. K. (1984). The effects of mands and models on the speech of unresponsive language-delayed preschool children. *Journal of Speech and Hearing Disorders, 49,* 43–52.

No comparison of service delivery models or dosage

Warren, S. F., & Schiefelbusch, R. L. (1983). *Teaching language for successful transition to the public schools: A socio-ecological approach. Final report, October 1, 1979 through September 30, 1982.* (Report No. G0079-05112). Lawrence, KS.

Not peer reviewed

Warren, S. F., Yoder, P. J., Gazdag, G. E., & Kim, K. (1993). Facilitating prelinguistic communication skills in young children with developmental delay. *Journal of Speech and Hearing Research, 36,* 83–97.

No comparison of service delivery models or dosage

Wasik, B. A., & Bond, M. A. (2001). Beyond the pages of a book: Interactive book reading and language development in preschool classrooms. *Journal of Educational Psychology, 93,* 243–250.

No comparison of service delivery models

Wasik, B. A., Bond, M. A., & Hindman, A. (2006). The effects of a language and literacy

intervention on head start children and teachers. *Journal of Educational Psychology, 98,* 63–74.

Different treatments

Wasik, B. H., Ramey, C. T., Bryant, D. M., & Sparling, J. J. (1990). A longitudinal study of two early intervention strategies: Project Care. *Child Development, 61*, 1682–1696.

No speech-language outcomes

Waters, J. M., & Siegel, L. V. (1982). Parent recording of speech production of developmentally delayed toddlers. *Education & Treatment of Children, 5*, 109–120.

No comparison of service delivery models or dosage

Watson, S. (1990). Pre-school project: An evaluation of group therapy. *Child Language Teaching and Therapy, 6*, 270–278.

No data; Only summary statements

Webster, R. L. (1980). Evolution of a target-based behavioral therapy for stuttering. *Journal of Fluency Disorders, 5*, 303–320.

No comparison of service delivery models

Weiss, M. J. (1999). Differential rates of skill acquisition and outcomes of early intensive behavioral intervention for autism. *Behavioral Interventions, 14*, 3–22.

No comparison of service delivery models

Weiss, M. J., & Delmolino, L. (2006). The relationship between early learning rates and treatment outcome for children with autism receiving intensive home-based applied behavior analysis. *Behavior Analyst Today, 7*, 96–110.

No comparison of service delivery models

Weiss, R. S. (1981). INREAL intervention for language handicapped and bilingual children. *Journal of the Division for Early Childhood, 4*, 40–51.

No comparison of service delivery models

Westling, D. L., Ferrell, K., & Swenson, K. (1982). Intraclassroom comparison of two arrangements for teaching profoundly mentally retarded children. *American Journal of Mental Deficiency, 86*, 601–608.

No speech-language outcomes

White, K., & Casto, G. (1985). An integrative review of early intervention efficacy studies with at-risk children: Implications for the handicapped. *Analysis & Intervention in Developmental Disabilities, 5*, 7–31.

No original data

White, K. R., Mastropieri, M., & Casto, G. (1984). An analysis of special education early childhood projects approved by the Joint Dissemination Review Panel. *Journal of Early Intervention, 9*, 11–26. doi:10.1177/105381518400900103.

Not a study

White, K. R., Taylor, M. J., & Moss, V. D. (1992). Does research support claims about the benefits of involving parents in early intervention programs? *Review of Educational Research, 62,* 91–125. doi:10.3102/00346543062001091.

No original data

Whitehurst, G. J., Epstein, J. N., Angell, A. L., Payne, A. C., Crone, D. A., & Fischel, J. E. (1994). Outcomes of an emergent literacy intervention in Head-Start. *Journal of Educational Psychology, 86,* 542–555.

Different treatments

Whitehurst, G. J., Falco, F. L., Lonigan, C. J., Fischel, J. E., DeBaryshe, B. D., Valdez-Menchaca, M. C., & Caulfield, M. (1988). Accelerating language development through picture book reading. *Developmental Psychology, 24*, 552–559.

Different treatments

Whitehurst, G. J., Fischel, J. E., Lonigan, C. J., Valdez-Menchaca, M. C., Arnold, D. S., & Smith, M. (1991). Treatment of early expressive language delay: If, when, and how. *Topics in Language Disorders, 11*(4), 55–68.

No comparison of service delivery models

Whitehurst, G. J., Zevenbergen, A. A., Crone, D. A., Schultz, M. D., Velting, O. N., & Fischel, J.

E. (1999). Outcomes of an emergent literacy intervention from Head Start through second grade. *Journal of Educational Psychology, 91*, 261–272.

No comparison of service delivery models

Whittingham, K., Sofronoff, K., Sheffield, J., & Sanders, M. R. (2009). Stepping Stones Triple P: An RCT of a parenting program with parents of a child diagnosed with an autism spectrum disorder. *Journal of Abnormal Child Psychology, 37*, 469–480.

No speech-language outcomes

Williams, C., Wright, B., Callaghan, G., & Coughlan, B. (2002). Do children with autism learn to read more readily by computer assisted instruction or traditional book methods? A pilot study. *Autism, 6*, 71–91.

No real difference in service delivery, only in materials

Wilson, G., Hobson, A., Boardman, B., Crocker, D., Fordham, M., Warren, E., & Wenk, D. (1999). *Kentucky early intervention system first steps*. Frankfort, KY: Committee for Program Review and Investigations.

Not a study

Wilson, L., Onslow, M., & Lincoln, M. (2004). Telehealth adaptation of the Lidcombe Program of Early Stuttering Intervention: Five case studies. *American Journal of Speech-Language Pathology, 13*, 81–92. doi:10.1044/1058-0360(2004/009).

No comparison of service delivery models

Woods, J. J., & Wetherby, A. M. (2003). Early identification of and intervention for infants and toddlers who are at risk for autism spectrum disorder. *Language, Speech, and Hearing Services in Schools, 34*, 180–193.

No comparison of service delivery models or dosage

Woods, S., Shearsby, J., Onslow, M., & Burnham, D. (2002). Psychological impact of the Lidcombe Program of Early Stuttering Intervention. *International Journal of Language & Communication Disorders, 37*, 31–40.

No comparison of service delivery models; No clinical question

Wren, Y., & Roulstone, S. (2008). A comparison between computer and tabletop delivery of phonology therapy. *International Journal of Speech-Language Pathology, 10*, 346–363.

Not all treatment computer delivered

Wren, Y., Roulstone, S., Parkhouse, J., & Hall, B. (2001). A model for a mainstream school-based speech and language therapy service. *Child Language Teaching and Therapy, 17*, 107–126.

Wrong population (school-age); Not frequency/intensity

Wulz, S. V., Hall, M. K., & Klein, M. D. (1983). A home-centered instructional communication strategy for severely handicapped children. *Journal of Speech and Hearing Disorders, 48*, 2–10.

Not a study

Yairi, E., & Ambrose, N. (1992). A longitudinal study of stuttering in children: A preliminary report. *Journal of Speech and Hearing Research, 35,* 755–760.

Treatment vs. no treatment

Yairi, E., & Ambrose, N. G. (1999). Early childhood stuttering I: Persistency and recovery rates. *Journal of Speech, Language, and Hearing Research, 42,* 1097–1112.

No comparison of service delivery models

Yoder, P. J. (2006). Predicting lexical density growth rate in young children with autism spectrum disorders. *American Journal of Speech-Language Pathology, 15,* 378–388.

No comparison of service delivery models or dosage

Yoder, P., Camarata, S., & Gardner, E. (2005). Treatment effects on speech intelligibility and length of utterance in children with specific language and intelligibility impairments. *Journal of Early Intervention, 28*, 34–49.

No comparison of service delivery models or dosage

Yoder, P. J., Kaiser, A. P., Goldstein, H., Alpert, C., Mousetis, L., Kaczmarek, L., & Fisher, R. (1995). An exploratory comparison of milieu teaching and responsive interaction in classroom applications. *Journal of Early Intervention, 19*, 218–242.

No comparison of service delivery models or dosage; Different treatments

Yoder, P., & McDuffie, A. (2006). Teaching young children with autism to talk. *Seminars in Speech and Language, 27*, 161–172. doi:10.1055/s-2006-948227.

No comparison of service delivery models or dosage

Yoder, P., & Stone, W. L. (2006). A randomized comparison of the effect of two prelinguistic communication interventions on the acquisition of spoken communication in preschoolers with ASD. *Journal of Speech, Language, and Hearing Research, 49,* 698–711.

No comparison of service delivery models or dosage; Different treatments

Yoder, P., & Stone, W. L. (2006). Randomized comparison of two communication interventions for preschoolers with autism spectrum disorders. *Journal of Consulting and Clinical Psychology, 74,* 426–435.

No comparison of service delivery models or dosage; Different treatments

Yoder, P. J., & Warren, S. F. (1998). Maternal responsivity predicts the prelinguistic communication intervention that facilitates generalized intentional communication. *Journal of Speech, Language, and Hearing Research, 41,* 1207–1219.

Different treatments

Yoder, P. J., & Warren, S. F. (1999). Facilitating self-initiated proto-declaratives and proto-imperatives in prelinguistic children with developmental disabilities. *Journal of Early*

Intervention, 22, 337–354.

No comparison of service delivery models or dosage; Different treatments

Yoder, P. J., & Warren, S. F. (2001). Relative treatment effects of two prelinguistic communication interventions on language development in toddlers with developmental delays vary by maternal characteristics. *Journal of Speech, Language, and Hearing Research, 44,* 224–237.

No comparison of service delivery models or dosage; Different treatments

Yoder, P. J., & Warren, S. F. (2002). Effects of prelinguistic milieu teaching and parent responsivity education on dyads involving children with intellectual disabilities. *Journal of Speech, Language, and Hearing Research, 45*, 1158–1174.

No comparison of service delivery models or dosage; Different treatments

Yoder, P. J., Warren, S. F., Kim, K., & Gazdag, G. E. (1994). Facilitating prelinguistic communication skills in young children with developmental delay II: Systematic replication and extension. *Journal of Speech and Hearing Research, 37*, 841–851.

No comparison of service delivery models or dosage

Yoshinaga-Itano, C. (2000). Successful outcomes for deaf and hard-of-hearing children. *Seminars in Hearing, 21*, 309–325.

No clinical question

Zebrowski, P. M. (1997). Assisting young children who stutter and their families: Defining the role of the speech-language pathologist. *American Journal of Speech-Language Pathology, 6*(2), 19–28.

Not a study

Zevenbergen, A. A., Whitehurst, G. J., & Zevenbergen, J. A. (2003). Effects of a shared-reading intervention on the inclusion of evaluative devices in narratives of children from low-income families. *Journal of Applied Developmental Psychology, 24*, 1–15.

Treatment not held constant

Zigmond, N., & Baker, J. (1990). Mainstream experiences for learning disabled students (Project Meld): Preliminary report. *Exceptional Children, 57*, 176–185.

Wrong population (school-age)

Zwi, M., Jones, H., Thorgaard, C., York, A., & Dennis, J. A. (2009). Parent training interventions for attention deficit hyperactivity disorder (protocol) (Art. No. CD003018). *Cochrane Database of Systematic Reviews*.

No comparison of service delivery models

Zwolan, T. A., Connor, C. M., & Kileny, P. R. (2000). Evaluation of the Foundations in Speech Perception software as a hearing rehabilitation tool for use at home. *Journal of the Academy of Rehabilitative Audiology, 33*, 39–51.

Wrong population; For school-age systematic review: rejected by committee (No clinical

question; Efficacy of treatment not service delivery model or intensity)